

**METACOGNITIVE STRATEGIES FOR LEARNING DISABLED ADOLESCENTS
IN SPECIALISED EDUCATION**

by

ARLENE ROSLYN MASUREIK-BERGER

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SUPERVISOR: DR. A. LEVITZ

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DISABLED ADOLESCENTS IN SPECIALISED EDUCATION
is my own work and that all the sources that
I have used or quoted have been indicated and
acknowledged by means of complete references".

....*A. R. Masureik-Berge*....

ARLENE ROSLYN MASUREIK-BERGER

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METACOGNITIVE STRATEGIES FOR LEARNING DISABLED ADOLESCENTS
IN SPECIALISED EDUCATION

By: Arlene Masureik-Berger
Degree: Master of Education
Department: Orthopedagogics
University: University of South Africa
Supervisor: Dr.A Levitz

SUMMARY

Learning disabilities are a life-long problem for many individuals. Besides the adjustments all adolescents experience in life, learning disabled adolescents must contend with academic problems at school which have a drastic effect on their self-esteem. This becomes particularly evident when these pupils face the demands of the secondary school syllabus where they have to be able to concentrate, read for information, memorise facts, answer questions and solve problems, and write assignments. By the time learning disabled adolescents reach secondary school they have already experienced so much failure that they become passive towards their studies.

Teaching these pupils metacognitive learning strategies covering these skills helps them to become more independent learners. Through executive training procedures they are assisted to become more involved in their studies, the promotion of better self-regulation and self-monitoring is fostered, and as their scores improve, so does their motivation and self-concept.

KEY TERMS: adolescence; answering and solving problems; cognition; concentration; immature learners; impulsivity; intervention programme; learned helplessness; memorisation; metacognition; parent involvement; reading for information; self-regulation; specialised education; specific learning disabilities; strategy instruction; writing assignments.

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CHAPTER ONE

INTRODUCTION, STATEMENT OF PROBLEM AND AIM OF STUDY.

1.1 ORIENTATIVE INTRODUCTION

According to Flavell and Wellman (Brown et al.1983:83) one of the main features of the 1970's was the failure of training studies, aimed at examining children's memory deficits and non-strategic behaviour, to effect major changes in the intelligent use of learning strategies. This provided impetus for the growth of the concept of Metacognition. Flavell and Wellman were interested in children's awareness of their own memory processes and the subject, task and strategy variables that influence learning. Furthermore, Brown et al. (1983:82) state that between the late 1960's and early 1970'S there was a shift in emphasis from the child seen as a passive organism responding to environmental influences, to the child seen as acting upon the environment, and through this action, defining it. There was a heavy concentration on the learner's activities and strategies in the learner-environment equation.

Kronick (1988:14), in reviewing the work of Luria, states that in spite of Piaget's belief that children below eleven were not capable of formal operational thought and therefore unable to match their knowledge base and learning attributes to an assessment of task demands, Luria reported that children aged three to three and a half were able to mediate their behaviour linguistically. He also found that impulsive children from eight to twelve were able to learn how to use language to inhibit their behaviour. This gave fresh hope to those who felt that the active monitoring of learning was a means of inculcating organised, reflective thought in learning disabled pupils.

Kronick (1988:15) states: "Metacognition was also embraced as possibly providing a solution for the insidious passivity (the learned helplessness) that was consistently observed in the LD (Learning Disabled), increasing in impact with age." By adolescence, the pupil is expected to cope with the increased demands of the secondary curriculum: his powers of concentration should enable him to maintain sufficient focus on his work to complete his tasks successfully, he should be able to elicit an increasing amount of information from text, he should be able to memorise facts from his notes, he will face an increasing amount of formal testing where he will have to answer questions and solve problems, and he should be able to cope with the writing of paragraphs or assignments. Learning disabled pupils however struggle with these demands.

Kleinhammer-Trammill et al. (1983:61) quote from Seligman (1975) to the effect that when individuals view their own behaviour as having no influence on consequent events, they are said to display "learned helplessness". Knopff (1983:544) describes "learned helplessness" as a behavioural pattern which begins with an individual's inability to succeed and receive contingent, positive reinforcement from the environment. "Over time the individual learns not to expect positive feedback from certain activities, and s/he ceases to engage in those activities"(Knopff 1983:544).

Added to this, when a person feels unable to influence the outcome of events, his/her performance deteriorates in subsequent achievement situations, even when the outcome of those situations can be controlled (Kleinhammer-Trammil et al. 1983:61).

The nature of the materials that children were set to learn also came under the spotlight, resulting in a review of knowledge factors. The compatibility between prior knowledge and new knowledge, as well as issues of access to, and use of knowledge became prominent concerns. Developmental journals were dominated by studies of children's knowledge and use of strategies, particularly those dealing with deliberate remembering (Brown et al. 1983:81).

Memory deficits, or as they were termed "production deficiencies" as described by Brown et al. (1983:82), Wiens (1983:146) and Leal and Raforth (1991:234), were of particular concern. Brown et al. (1983:82), in reviewing the work of Flavell, states that Flavell's work had led him to believe that immature learners tend not to introduce strategies as an aid to their learning. They could be trained to use strategies, but in the absence of specific instruction they often revert to their old bad habits.

Wong (1990:21) states: "The relevance of Metacognitive theory and research into the Learning Disabled field lies in providing a more complete understanding of academic difficulties/failures in LD students." It will be shown that the abilities-deficits theory of LD students academic difficulties is inadequate, and the opposing theory of task-analysis insufficient. Metacognitive theory redresses the insufficiency in the task-analysis theory. Together, task-analysis and metacognitive perspectives provide a satisfactory conceptual perspective on the academic difficulties of LD students, by pointing to the twin foci of LD students' instructional needs - namely, cognitive and metacognitive skills."

1.2 FACTORS GIVING RISE TO THE STUDY

1.2.1. POOR SELF-CONCEPT OF THE LEARNING DISABLED ADOLESCENT IN A SCHOOL FOR SPECIALISED EDUCATION

Some learning disabled adolescents not only experience the physical and emotional adjustments that all adolescents go through, but must contend with learning disabilities at school and in their social lives, which can have a drastic effect on their self-esteem. The fact that a pupil has been referred to a school for specialised education can cause him to have ambivalent feelings about his situation: while he has a strong desire to be part of the group of his peers in his own geographical location who attend the mainstream schools, he fears the possibility that he will not be able to cope in the mainstream, as years of failure have caused him to doubt his ability. Kronick (1988:38) states that their attitude is often negative as they feel helpless and out of control, and the mere fact that they have been "labelled" has a profound effect on their behaviour. Some adolescents are extremely resentful at being classified as "different" and blame the school, the teachers or their parents for placing them in a school for specialised education which they regard as inferior to mainstream schools.

According to Raviv and Stone (1991:602), self-concept issues are particularly relevant in adolescence. "In adolescence, the problem of lowered self-image may intensify due to the accumulation of additional years of academic difficulties, increased demands for performance, and the need to plan and prepare for future goals. In addition, developmental issues typical of this age group may affect identity formation and self-worth directly."

The capacity for some learning disabled adolescents to integrate internal and external experiences needed for the formation of a cohesive self-image strong enough to withstand any inconsistencies that may beset them, as well as achieve the level of formal operational thought necessary to be able to reflect and engage in abstract intellectual themes, and sublimate some of this stage's characteristically strong drives, seems at risk.

Derbyshire (1991:396) in reviewing the work of Quartel (1986) states that pupils in special education, which may include learning disabled, have unrealistic opinions of themselves; they may over-estimate or under-estimate their ability and this may often result in their actions being unsuccessful, compounding their lack of self-confidence.

Knopff (1983:543), reviewing the work of Bryan (1978), Cook (1979), and Kronick (1978), describes the learning disabled adolescent as feeling less popular and more socially unattractive; as attempting to avoid academic discussions and feeling less acceptance from teachers. Added to this they often suffer from poor social perception and misinterpret social cues. Furthermore, Knopff (1983:545) also believes that for any assistance programme for the learning disabled adolescent to be effective the most critical intervening variable, self-concept, must be controlled.

1.2.2. THE PASSIVE LEARNING DISABLED ADOLESCENT IN A SCHOOL FOR SPECIALISED EDUCATION

Some learning disabled adolescents in a school for specialised education develop an attitude of helplessness towards their learning.

Vrey (1979:38) describes this as "...indifference, listlessness, or apathy in the sense of an absence of feeling, passion or excitement." It is a lack of involvement, a detachment in which educational support is needed to direct the child's assignment of meaning and his will to become involved (see 2.3).

Derbyshire (1991:389) in reviewing the work of Torgensen (1977) states that some LD children are usually dependent on more specific guidance in the learning situation. She continues to quote from Jacobs (1984) that these children are mostly passive learners who are not able to work independently and purposefully. They may also be impulsive in the way they approach their problems and fail to understand instructions fully. To alleviate this the child needs to be actively involved in his problem and its solution.

Kronick (1988:45) states that LD children do not pick up behaviours that are not overtly taught or modelled. Having lost faith in their ability they are less receptive to change, and less willing to risk challenges as they are afraid of disappointing outcomes.

If we consider the five essential factors or categories of empirical education, i.e., attribution of meaning, involvement, experience, self-actualisation and the development of the self-concept, the passive learning disabled adolescent is in need of urgent assistance to fulfil these as he must become involved in a conscious, purposeful way in order to solve problems and achieve.

These essential factors involved in being an educand (a child on his way to adulthood with educational help) can briefly be described in the following way:

1.2.2.1 ATTRIBUTION OF MEANING

In order to make progress the child himself must always be able to understand reality in the context of what he already knows. According to Vrey (1979:28) meaning cannot be passively taken over: it must be discovered by an active learner. It is this ability to attribute meaning which allows the child to orientate himself and construct a meaningful life-world for himself.

Vrey (1979:33) states: "The maturing child will not actualise himself unless he knows, understands and is capable of action, i.e. unless he attributes meaning." It is thus imperative that the learning disabled pupil be assisted to overcome his learned helplessness and be a more active participant in his learning situation.

1.2.2.2 INVOLVEMENT

Vrey (1979:37) describes this as follows: "Involvement may be defined as the psychic vitality or vigour with which a meaningful objective is pursued and achieved." It encompasses the willingness or intentionality to be drawn in or involved in a relationship with another person or object, or idea, with a presupposed valued objective in mind. The learning disabled adolescent who has become detached from his purposeful goal, and passive about his learning, must be assisted to redirect his will, and to become involved.

1.2.2.3. EXPERIENCE

Experience is imbued with feeling and it is a meaningful event that involves the total person (Vrey 1979:42).

It determines the quality of a person's relationships and can inhibit or incite a person's involvement in all attribution of meaning. The learning disabled adolescent has frequently endured many years of failure and frustration and his feelings towards school are often understandably negative. With educational help he can be assisted to experience feelings of success which will in turn enhance the intensity of the subjective experience and improve the quality of the meaning assigned.

1.2.2.4. SELF-ACTUALISATION

Self-actualisation implies that a person is able to transcend himself and rise above apparent limitations (Vrey 1979:43). To be able to do this a person's basic needs, including acceptance and esteem, must have been met. This is very difficult for the learning disabled adolescent who has a low self-esteem as a result of his learning problem. He needs assistance to deal successfully with his academic difficulties so that his self-esteem can be restored. After his basic needs have been met he can be helped to self-actualise.

1.2.2.5. SELF-CONCEPT

According to Vrey (1979:47) the self-concept entails conceptions of an own identity and comprises three mutually dependent components: identity, action and self-esteem. It is always very meaningful to the individual, regardless of whether it is positive or negative. The learning disabled adolescent's self-concept will be inversely proportional to his anxiety (Vrey 1979:169).

1.2.3 THE DEMANDS OF THE SECONDARY SCHOOL

When the pupil enters the secondary section of the school he is expected to take on more responsibility for his own progress.

According to Wiens (1983:146): "The transition from the student-oriented teaching of the elementary school to the subject-oriented teaching of the secondary school is an abrupt one requiring many new and different adaptive behaviours. Not only must the student cope with more teachers and a variety of classrooms, but he or she is also expected to take on a greater responsibility for his or her own learning."

Learning disabled pupils seem to need a good deal of external structure to assist them to respond correctly. Since this is difficult to facilitate at the secondary level, and since the adolescent needs to feel more independent to realise his developmental aims, an intervention programme aimed at helping him to cope and feel more in control is needed.

As learning disabled pupils often do not learn incidentally, a direct, but informed method of instruction in learning strategies with a metacognitive thrust, will help to develop a repertoire of strategies which will lead them to feel more confident in the learning situation.

1.2.4. IMPULSIVE/FIELD DEPENDENT LEARNING STYLE

Susswein (1982:228) comments on research into "cognitive style" and considers the individual differences in cognitive performances as expressions of different ways of selecting and organising stimulus information.

He states that Kagan has examined the degree to which an individual is "reflective" or "impulsive" while Witkin has studied the degree to which the individual is "field independent" rather than "field dependent". They conclude that the child who responds too rapidly is "impulsive", while the child who responds more slowly and accurately is "reflective". The cognitive style of learning disabled children tends towards field dependence, impulsivity and constricted attentional control. Susswein continues that disturbed cognition will have consequences in other areas of personality functioning, for example, low self-esteem, behaviour problems and egocentricity. It has been found that direct instruction in more effective cognitive strategies has helped to improve the performance of impulsive children. The child can be assisted with a more mature way of approaching the material, as well as raising his awareness level of the fact that a task can be approached in different ways, some more effective than others.

Kronick (1988:39) further believes in the importance of teaching coping skills to aid learning disabled pupils to help themselves, rather than concentrating on altering educational practices so that they no longer perpetuate the status differences in society. She advocates enabling the learning disabled to become active participants in their learning process so that they can intervene on their own behalf. By modelling metacognitive learning strategies for and with the learning disabled adolescent he may be assisted to raise his own awareness level of what works for him. This will help him to feel more in control and thereby improve his self-concept.

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According to Wiens (1983:144) Piaget theorized that by adolescence one is capable of reflective thought and of escaping and soaring into abstract thought. However, learning disabled adolescents lack this ability and therefore fail to enjoy the learning process. Wiens (1983:144) continues: "The connection between being able to control one's thinking and the pleasure derived from that control and its results is what creates motivation for all sentient beings. Except in school, it seems, it is a pleasurable activity to learn and expand one's thinking abilities."

Wiens (1983:144) believes that school and family experiences influence the adolescent's intent to learn and thereby his/her control over own thought processes. Past successes (or failures) will therefore influence the will (or not) to use metacognitive strategies.

Therefore the fact that learning disabled adolescents do not organise and structure their thoughts is mainly a function of motivation and self-concept.

1.3 DEFINITION OF TERMS

1.3.1. METACOGNITION

According to Flavell (1976:232) metacognition is defined as follows:

"Metacognition refers to one's knowledge concerning one's own cognitive processes and products, or anything related to them, e.g., the learning-relevant properties of information or data... Metacognition refers among other things to active monitoring and consequent-regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective."

Chan (1991:4) in reviewing the work of Baker and Brown (1984) states: "...Baker & Brown (1984) have suggested that metacognition involves at least two components: knowledge (or awareness) and control (or regulation). The first refers to an awareness of the skills, strategies and resources that are required for the effective performance of a task. The second requires the ability to use self-regulatory mechanisms to ensure the successful completion of the task. This includes checking the outcome of problem solving attempts, planning and evaluating the effectiveness of any attempted action, testing and revising strategies used in learning, and taking remedial action to overcome difficulties."

Chan (1991:4) concludes that metacognition can thus be considered as "thinking about our thinking" or "conscious knowledge and control of our own cognition".

O'Loughlin et al. (1983:11) quote the following from Brown (1983) concerning knowledge about cognition as being relatively: "...late developing-information human thinkers have about their own thought processes and those of others."

O'Loughlin et al. (1983:12) state that they equate metacognition with self-regulatory skills. They quote the following from Brown (1980) in a discussion of the cognitive demands of reading: "The skills of metacognition are those attributed to the executive in many theories of human memory and machine intelligence, predicting, checking, monitoring, reality testing and co-ordination and control of deliberate attempts to study, learn or solve problems. These are the basic characteristics of our thinking efficiently in a wide range of learning situations, including effective reading."

Thus for the purposes of this study metacognition refers to conscious and deliberate attention to the demands of a given task in the light of existing knowledge, as well as to the functions of executive control regarding the efficient performance of the task.

1.3.2. STRATEGIES

According to Wellman (1988:5) the term strategy "...more narrowly denotes some routine or procedure deliberately employed to achieve some end."

Whereas, Derry (1990:348) refers to a learning strategy as a complex plan one formulates for accomplishing a learning goal.

Thus a strategy may be defined as a deliberate planful activity introduced in the service of remembering.

It is necessary to distinguish between the terms COGNITIVE STRATEGIES and METACOGNITIVE STRATEGIES:

1.3.2.1. COGNITIVE STRATEGIES

Gagne and Briggs (1979:71) refer to a cognitive strategy as a very special kind of intellectual skill, of particular importance in problem-solving.

They continue to state that: "In terms of modern learning theory, a cognitive strategy is a control process, an internal process by means of which learners select and modify their ways of attending, learning, remembering and thinking."

We may thus conclude that a cognitive strategy is a deliberate mental act employed in order to help solve a problem.

1.3.2.2. METACOGNITIVE STRATEGIES

Kronick (1988:15) defines metacognitive strategies as follows: "When we think about our productions metacognitively, rather than begin with the strategy, we first survey the task or event, evoke what we know about similar tasks or events in similar contexts, consider what we need to know, relate that to our impressions of our ability to execute such a task or to handle ourselves in that type of situation, select priorities in relationship to the idiosyncratic dimensions of the task at hand and the momentary context, and proceed with a strategy that economises energy and use of time. We decide how important the task is to us and to significant others and how important the execution of the task will be to the maintenance of our view of self and the view we imagine others have of us."

Kronick (1988:16) elaborates further: "Metacognitive strategies originate with the learner, whereas cognitive behavioural strategies are imposed on the learner."

Brown et al. (1983:214) defines a metacognitive strategy as opposed to a cognitive strategy as follows: "A metacognitive strategy would be skimming a chapter to estimate the difficulty of the material. Writing down the salient points is a cognitive strategy."

Wong (1990:18) offers another comparison between metacognitive and cognitive strategies: "For example to find the sum of a list of numbers, one simply adds them up. Here, adding is the cognitive strategy used to fulfil the goal. A metacognitive strategy in that situation would be repeating the adding process to ensure the sum is correct."

Furthermore, Wong (1990:18) reviewing the work of Brown (1980) cites examples of metacognitive strategies used by an efficient reader as follows:

- "1. clarifying the purposes of reading, that is understanding the task demands, both explicit and implicit;
2. identifying the aspects of a message that are important;
3. allocating attention so that concentration can be focussed on the major content area rather than trivia;
4. monitoring ongoing activities to determine whether comprehension is occurring;
5. engaging in review and self-interrogation to determine whether goals are being achieved;
6. taking corrective action when failures in comprehension are detected; and
7. recovering from disruptions and distractions - and many more deliberate, planful activities that render reading an efficient information gathering activity."

Wiens (1983:147) quotes Brown (1979) as describing metacognitive strategies as "deliberate, planful activities which render an efficient information-gathering activity."

Thus for the purposes of this study a metacognitive strategy implies a conscious, deliberate mental act employed to help solve a problem, where two important aspects are stressed: firstly, there must be an existing knowledge or awareness of the strategies and resources available to meet the demands of the task, and secondly, control measures must be employed to see that the task is completed successfully.

1.3.3 SPECIFIC LEARNING DISABILITIES

Controversy surrounds the terms "specific learning disability" and "learning disability".

According to Du Preez and Steenkamp (1980) Derbyshire (1991:380), the term "specific learning disability" is used in place of MBD (Minimal Brain Dysfunction), as in the case of the latter the medical aspect of the term is over-emphasised, and its educational implications are lost.

Du Preez and Steenkamp contend that the disability stems from specific shortcomings in the learning act not primarily as a result of mental or educational handicap, cultural neglect, emotional deviation or sensory defect (Derbyshire 1991:380). The Interdepartmental Advisory Committee regarding Handicapped Pupils (1980:17) refers to "specific learning disabilities" and sees this group of children as ones whose learning disability is so severe that they will need to receive instruction in a special school for the specifically learning disabled for the duration of their school career.

The term specific learning disability refers to the learning problem exhibited by a child who shows a discrepancy between his assessed ability and his actual performance at school, which is manifested in delayed development in one or more of the processes of listening, thinking, speaking, reading, writing, spelling and arithmetic. This however excludes all the learning problems due primarily to visual, hearing and motor deficits, mental handicaps, etc (Derbyshire 1991:381).

The Department of National Education, refers to specific learning disability as a syndrome of neurological dysfunction that is manifested as a learning disability

of a specific nature and is characterised by a significant difference between that which is achieved and an estimated potential, in spite of having adequate motivation, maturation and intelligence quotients within normal limits, without any visible physical deviation, protracted illness, social maladjustment or pedagogical and didactical neglect (Derbyshire 1991:381).

For the purposes of this dissertation the term "learning disability" is in accordance with this view of the Department of National Education.

The learning disabilities discussed in this study refer to specific learning disabilities with a possible neurological basis, manifested in the processes of listening, thinking, speaking, reading, writing, spelling or mathematics, where the learning disability is not primarily caused by sensory, emotional or motor defects, and where there is a marked discrepancy between the actual and estimated potential.

1.3.4. ADOLESCENT

According to Vrey (1979:165) this term usually refers to a person in the age group 12 to 22 years, a period characterised by phenomenal physical and psychological growth and development. Vrey (1979:165) divides the different phases in adolescence, allowing for cultural influences, as follows: early adolescence 12 to 15; middle adolescence 15 to 18; late adolescence 18 to 22, the lower limit being dominated by physical puberty and the upper by cultural demands.

Vrey (1979:165) describes "adolescence" as a term literally meaning "growing or developing towards something" and is thus a maturing period as such.

Dacey (1982:28) gives us a tentative definition according to Abbott (1981) as follows:

"The adolescent is any person, usually between the ages of 11 and 19, who has clearly started the search for a personal identity. In this process, the person examines many of the philosophical, social, and physical options which are available. The adolescent tries out numerous self-images and behaviours and accepts or rejects them. However, not until there is at least a sense of self-acceptance can adolescence end. A person has successfully achieved the goals of adolescence only when he or she is able to engage in a truly intimate relationship with another.

In summary, adolescence is a period of rapid personal development beginning at puberty and ending at adulthood, at which time most people have achieved employment, a relatively permanent relationship with another person, or both."

For the purposes of this study adolescent means a person between the ages of 12 and 22 who is maturing towards adulthood.

1.3.5 SPECIALISED EDUCATION (SPECIAL EDUCATION).

According to the Education Affairs Act (House of Assembly) 70 of 1988 Specialised Education is defined as follows:

'specialized education' means education of a specialized nature provided to suit the needs of handicapped children, as well as -

- (a) the psychological, medical, dental, paramedical and therapeutic treatment of, including the performance of operations on, handicapped children;

- (b) the provision of artificial medical aids and apparatus to handicapped children;
- (c) the care of handicapped children in a hospital, hostel or other institution;
- (d) the provision of transport, escort and other services as the Minister may deem necessary to meet the needs of handicapped children; and
- (e) the provision of guidance to the parents of handicapped children, including handicapped children who are not yet subject to compulsory school attendance, with a view to the instruction, teaching, training or treatment of such children.'

Du Toit (1991:55) also refers to the Education Affairs Act (House of Assembly) 70 of 1988 and states:

"Special education refers to the teaching of those children who do not progress adequately in the mainstream and therefore need specialized teaching."

In referring to key concepts in special education, Du Toit (1991:59) adds the following:

"The definition of the term "special education" in the relevant Acts does not only provide for specialized education , but other services such as medical and therapeutic treatment."

Therefore special education for the purposes of this study implies specialised education of a therapeutic nature for pupils with specific learning disabilities where pupils are guided and supported with remedial programmes to aid their learning and assist them to overcome or compensate for their deficits.

1.4 DELIMITATION OF FIELD OF STUDY

This study is concerned with the problems encountered by the learning disabled adolescent in a school for specialised education. As this is a very wide field it is necessary to define the parameters of the problem investigated.

In this study, the main delimiting factors are:

- * The learning disabled adolescent, who in spite of a good potential, has failed in the mainstream and been referred to a school for specialised education, is discussed.
- * The learning disabled adolescent who exhibits a severe form of passivity or learned helplessness, and does not actively engage in strategic use to aid his learning, is discussed.

1.5 BACKGROUND TO PROBLEMS UNDER INVESTIGATION

1.5.1 EXPOSITION OF THE PROBLEM

1.5.1.1 NON-STRATEGIC BEHAVIOUR OF IMMATURE LEARNERS

Teaching pupils learning strategies to help them learn more effectively is not a new concept.

Chan (1991:4) believes that many pupils experience difficulties at school because they exhibit non-strategic behaviour and because they have inappropriate causal attributions for success and failure. Studies with learning disabled pupils show that unless they are constantly prompted, they revert to non-strategic behaviour (Chan 1991:5).

Ellis et al. (1989:108) in reviewing the work of Hallahan and Kneedler (1979) report that many students with learning disabilities do not stop and consider the requirements of a task or the best way to address the task before responding to it.

Wong (1991:11) states that what learning disabled pupils' strategic deficits suggests is a lack of awareness of task demands, of what they do or do not know regarding strategies, and their lack of awareness of which strategy to employ to match task demands. She believes these strategic deficits point to a lack of metacognitive skills.

1.5.1.2 A METACOGNITIVE APPROACH TO TASK DEMANDS

Metacognition requires consideration of task demands and existing knowledge before responding. Thus training in executive processes (planning, predicting, monitoring, checking) should help pupils recognise a problem, use an appropriate strategy, monitor the strategy's effectiveness and make necessary adaptations (Ellis et al. 1989:108).

Lerner (1988:188) states that when people do something to help themselves remember, they exhibit metacognitive behaviour.

1.5.1.3 THE NEED FOR A MORE INDEPENDENT LEARNING STYLE

In the secondary section of the school it is necessary for pupils to develop ways of coping with subjects based on more textual information. "As pupils must learn from texts they must develop strategies that are principled, organised and coherent" (Brown et al. 1983:90). Brown et al. continues to state that in the high school the emphasis of learning shifts to coping with much richer semantic domains.

1.5.1.4 TASK-SPECIFIC STRATEGY INTERVENTION

Ellis et al. (1989:109) recommend an intervention programme based on a combination of a task-specific strategy approach along with training in executive processes which would give pupils the opportunity to practise skills and be exposed to a variety of task-specific strategies. In this way they could have input into the design of strategies and their role as control agents would be enhanced as well as their ability to generate new strategies for transfer in the classroom.

1.5.2 STATEMENT OF THE PROBLEM

The problem concerning the learning disabled adolescent in a school for specialised education is therefore the need to develop a set of learning strategies so as to improve their approach towards their academic tasks.

1.6 AIM OF THE STUDY

1.6.1 GENERAL AIM

The general aim of this study is to develop intervention strategies based on metacognitive principles to assist the learning disabled adolescent in the secondary section of a school for specialised education to become a more independent learner, particularly in the areas of concentration, reading for information, memorisation, answering questions and solving problems, and writing paragraphs or assignments.

1.6.2 SPECIFIC AIMS

- (i) To teach pupils a general metacognitive learning strategy related to concentration, a skill which is superimposed over all their learning.

(ii) To teach the pupils specific metacognitive learning strategies with special reference to the following areas:

- * reading for information from text
- * memorisation
- * answering questions and solving problems
- * writing assignments (paragraphs)

1.7 RESEARCH METHOD

The research approach will be twofold, namely a literature study supplemented by a limited empirical investigation.

1.7.1 LITERATURE STUDY

By means of a literature study the researcher is able to interpret, synthesise and integrate information and thus be in a position to identify and clarify implications and inter-relationships (see Steyn 1981:27).

A study of the pertinent literature will provide a frame of reference enabling the researcher to recontextualise the problem in a meaningful way.

The premise with regard to the literature in the present study is that by identifying the problems experienced by the learning disabled adolescent in terms of his passive attitude towards academic tasks, and researching the strategy training studies undertaken by other writers, it may be possible to teach learning disabled adolescents metacognitive strategies that will help them to become more independent learners.

A reflective view of the literature may assist the writer to develop a package of interactive intervention strategies incorporating a self-instruction format, based on metacognitive principles.

1.7.2 EMPIRICAL STUDY

The empirical study aims:

- i) To implement metacognitive strategies using the nomothetic method with twelve matched pairs of learning disabled adolescents in the secondary section of a school for specialised education.
- ii) To train the pupils in general and specific metacognitive learning strategies in order to raise their awareness level of how they may help themselves to become more efficient learners.
- iii) To encourage the pupils to provide personal input in order that the intervention strategies are seen as having personal value and therefore more meaning for the pupils.

1.8 PROGRAMME OF THE INVESTIGATION

There are six chapters in this investigation.

In Chapter One an overview of the purpose of the study is given as well as an outline of the specific nature of the problem under investigation and the intended method of intervention.

Chapter Two is devoted to the subject of Metacognition and its application in the field of learning disabilities.

Chapter Three is concerned with the development of the adolescent in general and the situation in which the learning disabled adolescent finds himself while attending a school for specialised education.

In Chapter Four the institution of the school for specialised education is discussed, and its role and function are outlined.

Chapter Five covers the research design and consists of the statement of the problem, general and specific aims of the nomothetic study, the experimental conditions and design, as well as the development of the intervention programme.

Chapter Six discusses the empirical investigation, the statistical results of the nomothetic study and the findings, implications, conclusions and suggested recommendations for possible future research based on this study.

CHAPTER TWO

METACOGNITION, LEARNING AND METACOGNITIVE STRATEGY INTERVENTION

2.1 INTRODUCTION

Brown et al.(1983:124) state that metacognition has been referred to as "...not only a monster of obscure parentage but also a many-headed monster at that." In spite of this she continues to observe that one of the real advances spurred by the interest in metacognition is the revised concern for mechanisms of change. This is because of the many studies that have been involved in microgenetic analyses of children learning by doing on their own, or learning to develop self-regulatory skills through the intervention of supportive others, particularly regarding training studies (Brown et al. 1983:126).

According to Kurtz (1990:177): "Efficient learning is characterised by appropriate use of strategies, and sophisticated metacognition is necessary for efficient strategy use." Kurtz (1990:117) elaborates further by stating that there are two ways in which metacognition guides the efficient use of strategies: firstly, in order to implement a strategy, a pupil must possess knowledge about specific strategies including how, when and why to use them. This is the type of metacognition that includes knowledge about strategies such as rehearsal, list making, underlining, finding a quiet place to study, as well as knowledge about where to apply the various strategies appropriately.

A second way that metacognition guides efficient strategy use is through its regulatory function: this regulatory function allows the child to monitor his own strategy effectiveness, and to modify the strategy if new task demands necessitate this.

Thus, the more a child adapts and modifies strategies effectively, the more he learns about new learning situations and new demands and where, when and why to use strategies to become a more efficient learner.

According to Brown et al.(1983:127), the main emphasis in most schools seems to be that of teaching content knowledge. They suggest that if students were tested for the efficacy of their learning skills there would be more likelihood of the learning process being part of the school curriculum. Metacognitive strategies deal with the ways in which different children go about learning what they need to learn, and Brown et al.(1983:128) believe that they need to be taught explicitly. Brown et al.(1983:82) explain that immature learners tend not to introduce strategies to aid their learning, but they can be trained to do so, and their learning improves dramatically.

2.2 THE CURRENT STATUS OF METACOGNITION AS A CONCEPT

As a fairly recent concept, the term metacognition has been criticized as being unclear and this may in part be due to the fact that many researchers prefer to leave the concept open-ended, avoiding rigid operational definitions and opting for examples of how students think about their thinking (Paris and Winograd 1990:16).

Brown et al.(1983:125) state that it has even been suggested that the term be abandoned and that the subordinate concepts be used instead. However, some researchers believe that the stage has now been reached when the current task should be to develop workable theories and procedures for the separate parts, so that these sub-systems can work fluently together (Brown 1987:105).

Paris and Winograd (1990:17) agree with the definition that emphasises (a) knowledge about cognitive states and processes and (b) control or executive aspects of metacognition. They also see metacognition as encompassing the two essential features of self-appraisal (personal reflections about one's knowledge, states and abilities) and self-management of cognition. Added to this, they emphasise metacognition as shared knowledge where self-appraisal and self-management can be promoted by other people as well as by self-discovery (Paris & Winograd 1990:21). In understanding the current status of metacognition as a concept, it is important to examine the roots of metacognition.

2.2.1 THE ROOTS OF METACOGNITION

Brown et al. (1983:107) suggest that there are four inter-linked problems in psychology pertaining to issues of metacognition, which can be regarded as the historical roots of metacognition. These are:

- (1) the reliability of verbal reports as data;
- (2) executive control mechanisms as a central information processor within the human system;
- (3) self-regulation or continuous conceptual reorganisation during learning and development; and,
- (4) development and transference from other-regulation to self-regulation.

In order to appreciate the concept of metacognition more fully, it is necessary to offer an explanation of the terms mentioned above.

2.2.2 VERBAL REPORTS AS DATA

Verbal reports depend on the availability of knowledge to consciousness and reflection, and are extremely valuable as providing a means of insight into cognitive processes, in spite of problems with reliability (Brown et al. 1983:108 - 110).

Verbal reports, according to Brown et al.(1983:110), provide an invaluable source of evidence concerning what a child knows, when he knows it, and how knowing influences his performance.

2.2.3 EXECUTIVE CONTROL

Brown et al.(1983:110) explain that most information processing models attribute powerful operations to a central processor, interpreter, supervisor, or executive system that is capable of performing intelligent evaluation of its own operations.

Brown et al. (1983: 110) continue to state: "The basic requirements of such an executive demonstrate the complexity of the issue. It must include the ability to (a) predict the system's capacity limitations, (b) be aware of its repertoire of heuristic routines and their appropriate domain of utility, (c) identify and characterise the problem at hand, (d) plan and schedule appropriate problem-solving strategies, (e) monitor and supervise the effectiveness of those routines it calls into service, and (f) dynamically evaluate these operations in the face of success or failure so that termination of activities can be strategically timed."

Two types of processing are attributed to the system: automatic and controlled processing. According to Brown et al.(1983:111), while automatic processing is a fast, parallel process not limited by short-term memory, and not requiring much subjective effort, controlled processing is slow, limited by short-term memory constraints and requiring conscious, subjective effort, thus providing a large degree of subjective control.

2.2.4 SELF-REGULATION

Brown et al.(1983:117) state that: "Any active learning process involves continuous adjustments and fine tuning of action by means of self-regulating processes... " and other more complex mechanisms. Regulatory functions include error detection and correction.

Furthermore, Brown et al.(1983:118) state that Piaget distinguished between three types of self-regulation, namely, autonomous, active and conscious regulation. Conscious regulation occurs at a mature level of reflected abstraction, and can be described as problem-solving via thought. Good learners regulate and refine their actions in response to corrective feedback, or in the absence of feedback; self-regulation can be seen as treating one's own thinking as an object of thought, and good learners will use this mechanism to improve on their productions (Brown et al.1983:117). This ability to step back and consider one's own thought or language as an object of thought, or use the subsequent conceptualisation to direct and redirect one's thinking, is believed to be late developing.

2.2.5 OTHER-REGULATION

Other-regulation involves guidance for a novice where the expert (parent, teacher or peer) takes the initiative and the responsibility for control of the learning situation. The expert shapes the experiences so that the novice is slowly drawn into taking more and more of the responsibility for his own learning. Brown et al. (1983:123) state: "Ideally, teachers function as just such mediators in the learning process, acting as promoters of self-regulation by nurturing the emergence of personal planning as they gradually cede their own direction."

Through the process of internalisation mature reasoners can then become capable of providing the supportive-other role for themselves. Paris and Winograd (1990:21) are of the opinion that the scope of metacognition should be expanded to include the affective and motivational characteristics of thinking.

2.3 METACOGNITION AND MOTIVATION

According to Paris and Winograd (1990:23), cognitive evaluations are rarely dispassionate assessments. When asked questions about how well pupils feel they are progressing, they respond with strong emotions.

Paris and Winograd (1990:23) report that Flavell (1985) called these emotional accompaniments of self-appraisal "metacognitive experiences", stating that they colour what pupils think about themselves as learners with strong emotions such as doubt, shame, helplessness, or perhaps confidence, pride and self-assuredness.

Brown et al. (1983:147) state that the feelings pupils have about themselves and particular learning tasks can have pervasive effects on their performance (see 1.2.2). They may resist a task because they believe they are incompetent or because they think their peers regard it as demeaning. An emotional block to effective learning can be caused by an inefficient use of limited attention because an inordinate amount of cognitive effort is being directed to self-defeating self-evaluation. Thus, in order to motivate a pupil, it will be necessary to assist him to perceive himself as in control of a situation. According to Harrison (1991:36), individuals who see themselves as in control of a given situation put forth greater effort to achieve than those who do not. A further factor that contributes to being in control is being aware of the characteristics of the task at hand as

well as one's own resources, such as motivation and meta-memory about strategies.

2.3.1 A COMPARISON OF METACOGNITION AND MOTIVATION

Harrison (1991:37) believes that metacognition and motivation contain similar constructs that are essential ingredients in the learning process. The foremost of these constructs are an awareness of -

- (a) goals/ideal state,
- (b) current state and resources,
- (c) perceived distance between current and ideal state,
- (d) steps to reach goals,
- (e) environmental conditions that affect strategies,
- and;
- (f) knowledge of success.

Harrison continues to state that to have this awareness or metacognition is to be in control of a given situation, and therefore, at the same time, to be motivated. In reviewing the motivational theories of Lefrancis (1979), Harrison (1991:36) refers to motivational theories that are cognitive in nature. These theories state that motivation can vary according to what factors the individual attributes success to: success perceived as stemming from outside forces such as luck, over which the individual has no control, will arouse little faith in personal effort and ability, whereas, individuals, who see themselves in control of a given situation, where personal effort and responsibility for task outcomes take on a determining role, put forth greater effort to achieve success. However, being aware of the characteristics of the task at hand and of one's own resources is a very important contributory factor.

Harrison (1991:37) concludes that: "To have this awareness or metacognition is to be in control of a given situation and at the same time to be motivated."

Wiens (1983:145), in reviewing the work of Torgenson (1977b), states that learning disabled pupils may lack an ability or an inclination to develop and use efficient strategies. He thus argues that both cognitive and emotional (affective) characteristics are necessary to adapt to the requirements of a task, and the ability or inclination to use strategies efficiently may be lacking in the learning disabled child.

2.3.2. THE INTERACTION BETWEEN COGNITIVE AND AFFECTIVE DEVELOPMENT

Wiens (1983:145), in reviewing the work of Hagen (1971), discusses what he refers to as two metacognitive strategies that influence the development of performance in the normal child: firstly, he begins to realise that he is an actor within his environment as well as a reactor to his environment, and secondly, the intention to remember is aroused because he has learned that remembering is both possible and desirable. This leads to an intent to learn, which feeds the ability to learn, and vice versa. This explains the interaction between cognitive and affective development, and why the child will or will not use active and efficient strategies to assist information processing.

Vrey (1979:266) states that affective factors can never be divorced from cognitive factors or isolated from other personality characteristics, and the person himself is the central factor in his own development with maintenance and enhancement of the perceived self as the motive behind all behaviour (Vrey 1979:228, 229).

He adds that a motivational state develops whenever there is seen to be a difference of any kind between the perceived-self-in-the-world and the concept of the adequate self, where, as soon as he notices a discrepancy between what he believes he could and should be, he tries to eliminate the difference.

2.3.3 METACOGNITION, SELF-DETERMINATION AND ATTRIBUTIONAL BELIEFS

Borkowski et al.(1990:54) view the first stage of metacognitive research as that devoted to direct relationships about memory processes (metamemory) and memory performance. The second wave of metacognitive research is characterised by shifts to the more complex domains of attributional and attitudinal factors.

Existing research suggests that the self-system, which includes constructs such as self-efficacy, self-esteem, locus of control, achievement motivation, and attributional beliefs is a complexity that supports metacognition and academic performance (Borkowski et al. 1990:58,59). Pupils enter school with attributional beliefs imposed on them by their parents. These effort-related attributions about success motivate the children to acquire new metacognitive knowledge, and thus, the cognitive and metacognitive processes thrive on these attributional patterns. The achievement of self-determination and self-control is determined by the interacting components of the self and the metacognitive systems.

2.3.3.1 SELF-DETERMINATION THROUGH SELF-WORTH

Borkowski et al. (1990:60) state that self determination is achieved through a sense of control over experience, and self-worth is maintained by the manipulation of attributional beliefs about success and failure.

In reviewing the work of Gardner (1961) and Epstein (1973), Borkowski et al. (1990:60) believe that society equates human value with ability, and therefore, failure is something to be avoided at all costs, and self-aggrandisement is a primary force in all human behaviour. However, inappropriate attributional beliefs about the role of effort in learning may interfere with cognitive development by blocking the development of a positive self-worth, thus affecting self-concept.

2.3.3.2 SELF-DETERMINATION AND SELF-CONCEPT

According to Borkowski et al. (1990:62), children with positive self-concepts along with effort-related attributions, are more likely to store and use newly learned information in such a way as to maximise its use later on. Attributional beliefs therefore have influence on the quality of the encoding processes especially when recognising the key attributes of new learning skills and strategies.

2.3.3.3 SELF-DETERMINATION AND AFFECT

Borkowski et al. (1990:62,63), in reviewing the work of Harter (1982), Weitz (1978) and Covington and Omelich (1979a), describe how affective responses to task demands and outcomes are a product of, and reinforce the development of, the self and metacognitive systems. Pride is maximised when success is perceived to be the result of one's high ability and effort. These emotional responses to the outcomes thus support metacognitive and cognitive development, or can undermine it, if the outcomes are perceived as negative. Borkowski (1990:64) continues to state that children who feel good about themselves are more likely to engage in strategic behaviour,

seek challenges and persist in strategic behaviour, even when they experience a setback. For the metacognitive system to work, besides the necessary motivation, the children must have adequate information about both general and specific strategy knowledge, the when, how and why of using strategies, otherwise effort-related attributions will be of little use. In this sense the self-system fuels metacognition by giving pupils reasons to learn: pupils who are intrinsically motivated and who hold effort-related attributions, are more likely to believe in the merits of strategic behaviour.

2.3.3.4 THE RELATIONSHIP BETWEEN ATTRIBUTIONAL BELIEFS AND PERFORMANCE

According to Kurtz (1990:178,179), some of the characteristics and beliefs of the individual, related to motivation, are self-esteem, locus of control and attributional beliefs. Kurtz refers to research done by Dweck (1975; 1987) and Diener and Dweck (1978), which shows that the amount of control they perceive they have over their achievements, influences their effort and expenditure on memory and problem-solving tasks, and therefore their performance.

One aspect of metacognitive knowledge that is motivational in nature is that the informed learner realises that it takes effort to deploy strategies and, therefore, effortful behaviour leads to better performance (see 3.4.8). A metacognitive theory approach focuses on the child's knowledge about the value of effort, especially in the employment of strategies that influence outcomes, and thus, children who possess metacognitive knowledge about the use of strategies, will perform better and be more motivated than those who attribute their academic

outcomes to luck, degree of difficulty or teacher bias. Kurtz, in reviewing the work of Kurtz and Borkowski (1984), states that children who display an attributional belief in the importance of effort will have more metacognitive knowledge about strategies than their peers.

She adds that attribution retraining, combined with strategy training, will result in superior achievement, as the relationship between attributional beliefs and performance may lead to improved transfer, and a boost in motivation will make a big difference to a child's response. Further factors that will have extensive influence on activating strategy use for successful learning are metamemory and the importance of a well-elaborated knowledge base.

2.4 METACOGNITION, METAMEMORY AND THE IMPORTANCE OF A WELL ELABORATED KNOWLEDGE BASE

Brown et al.(1983:88,89) discuss the early development of strategies with reference to studies done by Perlmutter and Myers (1979), where it was assumed that improvement in memory development and strategy use was the result of increases in knowledge and changes in memory performance in tasks that tap knowledge. Another approach was to assume that early strategic intervention is related to efficiency and the emergence of a planful memory. However, Brown et al. (1983:90) conclude that mature learning is in a large part the result of the application of rules and principles, and of the systematic suppression of less mature habits of learning. Here strategies and knowledge factors are closely related, and even simple strategies like rehearsal, are influenced by the nature of the materials to be learnt and the organisational knowledge that a learner already has developed in a well-elaborated knowledge base.

Muir-Broaddus and Bjorklund (1990:100) believe that information processing becomes more efficient with age, as children with age and experience acquire more facts about significant aspects of their environment.

Muir-Broaddus and Bjorklund (1990:100) state that: "When asked to remember something from a well-elaborated knowledge-base, relations among the target information are activated with very little mental effort, allowing the child to maintain more items in storage than usual or execute other cognitive processes."

Strategic deficiencies may thus be the result of the nature of the child's knowledge base and an inadequate knowledge representation that does not permit mature strategy application.

2.4.1 THE ROLE OF A WELL-ELABORATED KNOWLEDGE BASE

Chi (1987:240) believes there is a close link between developmental differences in the efficiency of cognitive processing, and strategic functioning and meta-memory, in our conceptualisation. The efficiency of cognitive processing plays an important part, as the degree to which a child processes information, which is dependent on the knowledge a child has for this information, will affect the implementation of a strategy and the extent to which the strategy will be effective. The amount of knowledge which the child possesses, as well as the way in which that knowledge is structured, will influence the way in which new knowledge is integrated with existing knowledge. New productions can best be integrated faster and easier when there are many connections or other productions like it in the memory (Chi 1987:248).

Chi (1987:240) cites the chess master as an example of the importance of programming a system to possess a large quantity of organised knowledge as opposed to programming a system with powerful search heuristics: the chess master's expertise stems more from a large storage of meaningful patterns in long-term memory, than from powerful search heuristics.

Furthermore, Chi (1987:244) feels that age differences in memory performance are not always accompanied by observable strategy differences. Studies done by researchers show that an alternative source of development, such as the knowledge approach must be considered. The results showed that having domain-related knowledge, can sometimes even overcome children's limited use of strategies.

Brown et al. (1983:100) view the question of the use of relevant knowledge from a dynamic perspective: lack of relevant knowledge is a symptom as well as a cause of an inability to learn or remember new information, and people differ in the degree to which they spontaneously utilise available information in order to learn and understand. To function independently, children must be able to access available knowledge and apply it appropriately. This is the reason why students vary in what they know and what they don't know. Besides the importance of the organisational structure of knowledge, it is also necessary to understand that different types of knowledge exist.

2.4.2 DIFFERENT TYPES OF KNOWLEDGE IMPORTANT IN METACOGNITION

According to Marzano et al. (1988:13), three types of knowledge are important to metacognition: declarative, procedural and conditional. Declarative knowledge is described as "knowledge that", which is exemplified by

the organised collection of facts in the various disciplines learned at school. Procedural skills, or "knowledge how", are those performance capabilities that are involved in the manipulation of symbols or the solving of problems. All three types of knowledge are essential aspects of metacognition.

2.4.2.1 DECLARATIVE KNOWLEDGE

This type of knowledge requires conscious understanding of facts as they are presented, so that new knowledge can be linked to prior knowledge. This is the type of knowledge used in content subjects. By a process known as elaboration, additional information is accrued in the form of logical inferences, a detail or anything else that serves to connect the information. In the working memory the two logically related ideas enter conscious memory simultaneously and are encoded by the learner. Self-questioning is believed to be a powerful elaboration technique and has been incorporated into many learning strategies (Derry 1990:359). Elaborations are often spontaneously generated by the student and do not necessarily need to be prompted.

2.4.2.2 PROCEDURAL KNOWLEDGE

Procedural knowledge represents the ability to do something and is linked to expertise involved in procedures for word recognition, formation of letters and symbols, adding and subtracting and solving word arithmetic problems (Derry 1990:360). Procedural knowledge differs from declarative knowledge in that when the procedural skills are well-versed they can be called into use fairly quickly and automatically, and then require little conscious effort. This knowledge is often represented as "condition-action rules" or "productions" which have an IF-clause

specifying what conditions must be met, and a THEN-clause which specifies what action must then be taken. It is important, because it enables students to think reflexively in situations that demand an accurate and rapid response.

2.4.2.3 CONDITIONAL KNOWLEDGE

This type of knowledge refers to knowing why a given strategy works or when to use one strategy as opposed to another. This type of knowledge is seen as a critical ingredient in a successful training programme (Marzano et al.1988:14).

The above types of knowledge are critical factors to the concept of metamemory.

2.4.3 THE CONCEPT OF METAMEMORY AND ITS RELATIONSHIP TO STRATEGY USE

Pressley et al. (1985:112) feel that when all the evidence is considered, it is apparent that successful teaching of memory strategies is critically dependent on metamemory about those strategies. Furthermore, Pressley et al.(1985:115) describe that part of metamemory referred to as memory about strategies, as MAS (memory about strategies). It is assumed that MAS is a mixture of procedural knowledge (strategies and "how to" knowledge about strategies) and declarative knowledge (factual knowledge about strategies).

The following is a definition of the concept of metamemory according to Flavell and Wellman (1977:4):

"(An) individual's knowledge of and awareness of memory, or of anything pertinent to information storage and retrieval. (For example),... a person has metamemory if he (or she) knows that some things are easier to

remember than others, is aware that one item is on the verge of recall, while another is wholly irretrievable at present."

In other words, a person with a mature metamemory would recognise that, while some situations require effort in memorisation, others do not. Some researchers believe that is too simplistic a view of the relationship between metamemory and memory behaviour. While it is accepted that individual differences do exist in memory skills, and intraindividual differences exist in memory ability across tasks, the important requirement is to know when, where and how to use different strategies.

Borkowski et al. (1983:461) investigated metamemory and its relationship to strategy transfer. They describe metamemory as follows:

"Metamemory, as a distinct kind of procedural knowledge, represents the context into which abstracted representations of newly acquired strategies, together with their unique utility and value, become incorporated. Its theoretical importance rests on an assumption about the connection between metamemory and strategy transfer: the greater the "maturity" of a child's metamemory the greater the likelihood that a mature strategy will be maintained in the long-term memory and available for use in solving new problems."

In investigating the relationship between impulsivity-reflectivity (cognitive tempo), strategic behaviour and metamemory, the data they collected seems to suggest that metamemory mediates strategy transfer for impulsive and reflective children. Under this assumption, they believe that metamemory facilitates the actualisation of strategic behaviour, and in turn, efficient use of strategies enriches metamemory (Borkowski et al. 1983:471).

2.4.3.1. A COMPONENTIAL THEORY OF METAMEMORY

Pressley et al.(1985:114) believe that studies have revealed a definite link between metamemory and memory performance and behaviour; metamemory is seen both as a potential cause and consequence of memory behaviour. It can be described as an integrated, interactive system of knowledge and strategy training and appears to be the most sensitive context in which we can understand how individual differences in pre-existing levels of metamemory can influence performance. In an effort to explain the concept of metamemory, Pressley et al.(1985:115-120) propose the following as components of metamemory, which exert a distinctive influence on the learning and memory performance of children:

- (1) Specific strategy knowledge.
- (2) Relational strategy knowledge.
- (3) General strategy knowledge.
- (4) Memory acquisition procedures.

(1) SPECIFIC STRATEGY KNOWLEDGE

This component is concerned with knowledge about specific strategies such as rehearsal, organisation, and elaboration and their application. It is also concerned with knowledge about whether a strategy was helpful in the past, how to modify it to suit different tasks, and the motivational aspect of how much effort was required to use the strategy and how successful it was.

(2) RELATIONAL STRATEGY KNOWLEDGE

This component allows the child to classify strategies according to their strengths and weaknesses and helps to highlight the attributes of competing strategies in the face of different task demands, providing useful information about strategy selection and revision.

(3) GENERAL STRATEGY KNOWLEDGE

Information in this component reflects the child's understanding of the knowledge that effort is required to apply strategies, and that if properly applied, strategies aid learning. Feedback about strategy effectiveness enhances the value of being planful and strategic and is thus also motivational in character.

(4) METAMEMORY ACQUISITION PROCEDURES (MAPS)

MAPS help children determine relative strategy efficacy. They assist the child to evaluate whether a strategy was helpful or not in enhancing performance, as well as detecting any inconsistencies between memory outcomes and strategy beliefs (Pressley et al. 1985:119). In mature learners MAPS is complete enough for the learner to make decisions as regard to when, where or how to use a strategy. In cases where production deficiencies occur, owing largely to deficient strategy knowledge, strategy training instruction has proved beneficial (Pressley et al. 1985:125). Borkowski et al. (1983:471) stress the importance of emphasising the rationale for the strategy use, as impulsive children might be unaware of why a strategy in their repertoire is appropriate.

Strategy development that aids learning is thus critically dependent on a mature metamemory.

2.5 METACOGNITION AND LEARNING

According to O'Loughlin et al. (1983:10), metacognition is central to the theory of self-directed activity which underlies most contemporary research in study skills. The active student has the ability to make sophisticated judgements, select strategies and monitor his progress towards a desired goal.

O'Loughlin supports the theories of Brown et al. (1983) of the learner-in-context model.

As mentioned previously (see 2.3), to be motivated for successful learning, the pupil needs to see himself in terms of his activities, his resources, the nature of the materials to be learned and the nature of the criterial task.

2.5.1 THE TETRAHEDRAL FRAMEWORK

Brown et al. (1983:85) base their theory of learning how to learn on the tetrahedral framework or interactive learning model of Jenkins (1979). According to this theory, in order to understand learning, one needs to consider the interaction of the subject (his activity, prior knowledge etc.) and the environmental factors (task demands, materials, context etc.). To understand the learning process, the following four factors need to be taken into consideration:

- 1) the learner's activities;
- 2) the characteristics of the learner;
- 3) the nature of the materials to be learned; and
- 4) the nature of the criterial task.

2.5.1.1 THE LEARNER'S ACTIVITIES

Brown et al. (1983:85) describe the learner's activities as deliberate plans or routines, for example, rehearsal, categorisation and elaboration, called in-to service for remembering, learning or solving a problem, and not necessarily synonymous with strategies available in the knowledge base. Highlighting, note-taking of main points and underlining and self-questioning would be strategies used by older students, and an increased use of these activities would lead to better generalisation.

Brown et al. (1983:92) believe that the acquisition of these activities is developmental and may be explained as follows: 1) there is gradual emergence of strategic planning; 2) age is not crucial in the relationship between effective plans and efficiency; 3) there is a close interdependence between strategic action and the other points of the tetrahedron; and 4) often partially adequate strategy development impedes progress towards a more effective strategy, because once students have acquired a strategy, they may apply it consistently, and it takes a great deal of effort to abandon it in favour of a more efficient strategy.

Pupils need to be flexible and to match their activities to the inherent resources they have at their disposal.

2.5.1.2 CHARACTERISTICS OF THE LEARNER

The characteristics inherent in the learner are, for example, memory limitations, prior knowledge and motivation (Seidenberg 1988:62), and the learner needs to be aware of these in order to match them to the demands of the task at hand.

Brown et al. (1983:95) divide this type of declarative knowledge into factual and strategic knowledge, stating that it is a learner's factual knowledge which determines learning activities and efficiency.

Another major characteristic of the learner is capacity. Capacity is described as one's working memory or attentional capacity, and the limitations on what can be concurrently held in memory. Brown et al. (1983:100) state that functional capacity increases

developmentally along with the complexity of one's knowledge base and one's repertoire of strategies. Another facet that increases developmentally is that of recognition memory and the ability to scan for familiar or meaningful stimuli.

2.5.1.3 THE NATURE OF THE MATERIALS

According to Seidenberg (1988:60), textual features such as familiarity, structure and coherence will have an influence on recognition memory. Brown et al. (1983:103) refer as well to the compatibility of the materials with the knowledge-base factors of the learner.

As learning does not occur in a vacuum, to be successful, learners need to be aware of an end-product in order to tailor their learning activities accordingly.

2.5.1.4 THE CRITERIAL TASK

Brown et al. (1983:104) believe that effective learners are aware of a goal, an end product, and they structure their learning activities accordingly. Seidenberg (1988:61) states that a learner needs to be aware of processing and retrieval demands and be able to adapt accordingly, and efficient learners appear to possess this flexibility. Brown et al. (1983:106) report that the ability to modify one's activities in the light of changes in the criterial task is most essential for efficient learning. Thus, to be an effective learner a pupil needs to understand how the above four points of the tetrahedron interact, so that he or she may adapt to the competing demands of all four forces. Effective learning also means the transfer or generalisation of newly learned skills to novel but appropriate tasks.

2.5.2 FEATURES OF MAINTENANCE AND GENERALISATION

The success of strategic intervention can be measured by the extent of generalisation (transfer) of newly learned skills to novel but appropriate tasks and extent to which the pupil is able to maintain strategy use effectively over a period of time. According to Gelzheiser (1984:1129), multifaceted training packages which include specific components need to be used to produce skill generalisation, as it is difficult to obtain. Giving detailed information about the need for and the effects of the instructed routines is one method that can lead to better transfer (Brown et al. 1983:134).

2.5.2.1 INFORMED TRAINING

Brown et al. (1983:129) believe that informed training provides the learner with a rationale about the purpose of the training; when a pupil understands the significance and value of a training package for himself, it will change his approach to learning the new material and this will result in better maintenance (durability) and generalisation. If the pupil does not understand the significance or value of the new skill for himself personally, when prompting is removed, his performance will return to the base line. Providing feedback and appropriate rewards after recall has also proved to enhance transfer and result in better acquisition performance (Brown et al. 1983:134).

In order to achieve generalisation across settings, control needs to be ceded to the pupil so that he is in a position to mediate on his own behalf. This is effected through the teaching of self-monitoring and self-control skills.

2.5.2.2 TRAINING IN SELF-MONITORING AND SELF-CONTROL

Meichenbaum (1982:130-131) describes his cognitive behaviour intervention as aimed at helping impulsive children with self-control problems talk to themselves, think before they act and use strategies as a recipe for generalisation. This will help the pupil to use cognitive strategies to manage his own behaviour while working on a task and improve his self-control. Training in self-control, where subjects monitor themselves, allows them to see for themselves that their performance is improving, and thus provides them with the opportunity to internalise strategy effectiveness.

Schumaker et al. (1986:344) state that students who were taught self-control (self-motivating) procedures were able to complete eight times as many lessons per day than they did when other motivating procedures involving extrinsic contingencies were in effect.

To ensure that a pupil uses a strategy again, he must believe that the use of the strategy will lead to success (Licht & Kistner 1986:246). It will be necessary for the teacher to give very explicit instruction to ensure that the pupil experiences the strategy successfully so that he will be motivated to use it again on his own.

2.5.2.3 EXPLICIT INSTRUCTION

Paris and Oka (1989:39) state that strategies need to be explained sensibly and explicitly, and that mere inferential explanation is insufficient. Metaphorical descriptions, think-aloud demonstrations, teacher modelling and then fading and verbal discussions all help to make the strategies more public, sensible and memorable.

One would also need to train on a variety of tasks, giving prolonged guidance and practice and thus allowing for as wide an experience as possible for pupils to draw on and see similarities in novel situations.

2.5.2.4 RECOGNISING PROBLEM ISOMORPHS

Brown et al. (1983:143) state that many of the difficulties related to generalisation seem to revolve around recognising problem isomorphs, which entails recognising that a new situation is similar to one encountered previously. By increasing the variety of situations in which a pupil may have the opportunity to see the connections, we increase the probability that transfer may occur. Subjects may also be taught a rule to follow to identify occasions where the use of the instructed strategy is appropriate. In order to be successful, these strategies must be practised, at first under the guided direction of the teacher, and then by the pupil across classroom settings.

2.5.2.5 PRACTICE

Derry (1990:369) states that in all but the most trivial subject areas, training a procedure alone will not produce an expert. Even after a strategy is thoroughly understood in the declarative sense, it must of necessity be proceduralised, as true expertise can only be achieved by actually performing: experts become experts through practice, and skills of self-regulation evolve slowly through intensive, long-term practice.

Gelzheiser (1984:1136) also refers to the importance of practice, as after strategies have been acquired, they increase in effectiveness with practice.

Staszewski (1990:280) reports on a case study where a pupil's improvement in memory skills was a result of the interaction of practice, knowledge and strategies.

Pupils can be taught a variety of metacognitive strategies through practice in guided intervention procedures that will assist them to become more effective independent learners.

2.6 METACOGNITIVE STRATEGY INTERVENTION PROCEDURES

Chan (1991:6) states that children internalise and develop their individual competencies through social and linguistic interactions with more knowledgeable and experienced persons they come into contact with, such as parents, teachers and peers. If there is to be a transition from conscious other-regulation (parents, teachers, peers) to conscious self-regulation, children must be assisted to gain control of their cognitive processing. In this interaction the adult takes the lead in helping the child to adopt a task-appropriate strategy that the child would not be capable of independently. Through carefully scaffolded adult guidance, the child is led to construct and internalise the new task-appropriate strategy.

Most cognitive and metacognitive interactive interventions involve the use of overt speech or dialogue where the teacher describes and models the desired behaviour so that underlying thought processes are made explicit and concrete. Students are then expected to imitate and use verbalisations to guide their own thinking processes.

Eventually the adult fades from overt to covert speech to allow the student to internalise these verbalisations

gradually. Speech is thus used as a medium for the transfer and internalisation of cognitive tactics from adult to student. However, to achieve self-regulation and self-control, training in executive strategy procedures must be undertaken.

2.6.1 TRAINING EXECUTIVE STRATEGY PROCEDURES

According to Borkowski and Turner (1990:161), the most salient but least understood aspect of metacognition is self-regulation and executive functioning. It is the component responsible for both near and far generalisation and has been referred to as the hallmark of intelligence. Ellis et al. (1989:108) describe executive functioning as the ability to create and apply a strategy to a novel problem.

Executive process training involves helping students recognise a problem and solve it by creating a strategy, monitoring the strategy's effectiveness and making any necessary adaptations. By combining task-specific strategies with executive process training, and varying the task-demands, students are exposed to a variety of task-specific strategies and are given the opportunity of drawing on their experience to design new strategies to suit a novel experience.

Basic steps in procedures in executive training are:

- 1) focus on the nature of the problem to be solved;
- 2) identify and analyse the critical features of the problem;
- 3) generate a series of problem-solving steps; and
- 4) monitor the effectiveness of the self-generated strategy and make any necessary modifications.

Executive processes can be taught using the self-instructional format and this helps the child to

approach the problem in an orderly manner. Once a child learns these selection and monitoring skills, he gains control over areas previously externally directed by others. Thus, self-regulation is a key factor in executive processing and independent learning.

2.6.2 SELF-INSTRUCTIONAL PROCEDURES

As a procedure, self-instructional training is designed to focus on direct teaching of a set of self-guiding instructions on how to perform a task, particularly reading for information. A five step procedure was developed by Meichenbaum (1982:133) in an attempt to help impulsive children think before they act, and consists of a self-interrogation strategy which helps students to monitor their understanding.

Ellis et al. (1989:110) designed an executive strategy called SUCCESS which leads students through a sequence of steps from analysing the problem to saving the strategy. After students had demonstrated a measure of proficiency using the strategy, they were asked to apply the strategy to classroom tasks.

According to Chan (1991:7), a training sequence in the "think-aloud" format usually extends over several stages:

- 1) Cognitive modelling: the teacher models the instruction by thinking aloud and performing the task;
- 2) overt external guidance: the teacher and the student perform the task together, the student imitating the teacher;
- 3) overt self-guidance: the student performs the task alone verbalising aloud while the teacher monitors the student's independent use of self-instruction as a guide for completing the task;

- 4) faded self-guidance: the student performs the task while whispering the self-instructions and the teacher continues to monitor while the instructions are faded to the covert level;
- 5) covert self-instructions: the student performs the task using covert self-instructions.

Ryan et al.(1986:378) report on encouraging results with studies examining self-instructional training, especially with regard to performance improvement in terms of accuracy, reflectivity and information processing. They believe that it is the active participation of the child promoted by the overt-to-covert rehearsal of self-instructions that is the necessary ingredient.

Paris and Oka (1989:35) report on self-instructional procedures that comprised modelling, guided practice, faded self-guidance, and covert self-instruction where significant improvement was noted in student awareness and use of self-directed statements that influenced comprehension monitoring while reading.

However, in addition to the strategies mentioned, learning disabled pupils nearly always need to develop a more adaptive attributional style. Thus, one can teach them to attribute their difficulties to factors that are under their control, such as insufficient effort or ineffective strategy use.

2.6.3 ATTRIBUTIONAL RETRAINING

Attributional retraining focuses on enhancing students' awareness of the need for effort and strategy use, factors that are under their control, in order to improve performance (Chan 1991:8).

Training involves getting the students to verbalise overtly statements like: "I didn't finish in time!" or, "I couldn't get the right answer because I didn't use the right strategy!"

During training students are first encouraged to make these statements aloud and then fade to a whisper, and eventually say them silently to themselves.

The specific purpose of the training is to change the way the students think about causal attributions of their success and failures. It is hoped that when the overt speech is internalised, it will mediate between the stimuli and responses. The most effective training has occurred in conjunction with specific instruction in the use of appropriate strategies for specific tasks.

With learning disabled pupils it has been suggested that it is preferable to attribute failure to ineffective strategy use, rather than to lack of effort, as many learning disabled pupils do try very hard and still receive little payoff. After learning a strategy, students can be taught to attribute their successful performance to the effective use of the strategy.

Sometimes, when a task appears very daunting and a pupil's confidence wanes, a shared responsibility for exacting meaning can be sought in the form of reciprocal teaching.

2.6.4 RECIPROCAL TEACHING

Reciprocal teaching involves dialogue between student and teacher in order to jointly construct meaning from text (Chan 1991:7). Students are taught a series of strategies to employ during their reading, for example,

summarising and paraphrasing to identify the main idea, generating self-questions about the text for elaboration, clarification through re-reading, reading ahead or questioning the teacher if assistance is needed, and lastly making a prediction about how the text ends. Important elements in this type of instruction are communication with an expert for guidance and scaffolding by the expert for the novice for support. The expert's role fades as the novice's confidence grows. Eventually, the novice will be able to transfer the strategies across classroom settings in the absence of the expert.

2.6.5 TRANSENVIRONMENTAL TEACHING

This type of instruction promotes generalisation and transfer of strategies across classroom and individual tuition room settings. An assessment is made of the specific skills required in the classroom. These skills are then acquired and practised individually. Specific metacognitive instruction is provided as to the usefulness of the strategy and how, when and where it can be implemented effectively in the classroom. An assessment is then conducted as to how effective the target instruction has been in the classroom, and any necessary adjustments are made. An essential feature of this approach is the integration across settings and the collaborative consultation between the experts and the student.

2.7 SYNTHESIS

The metacognitive approach shifts the emphasis from the underlying deficits theory to that of training the executive processes of self-awareness and self-control. The relevance of metacognition and motivation is stressed and the possibility of constructs they share is acknowledged.

The significance of metamemory and a well-elaborated knowledge base is emphasised, as is the inter-active nature of the learner-in-context model. It is posited that combining a metacognitive approach with training in constructive attributional beliefs and strategy use well-matched to task demands, will lead students to feel more in control and thus enhance their self-esteem and assist them to become more autonomous learners.

2.8 PROJECTION FOR NEXT CHAPTER

Chapter Three discusses the learning disabled adolescent with special reference to: characteristics of adolescence, i.e. psycho-social characteristics that have a possible neurological basis as well as affective deficits and lack of motivation, cognitive and metacognitive deficits, academic deficits, the lack of strategy use by the learning disabled adolescent and special educational needs of the learning disabled adolescent.

CHAPTER THREE

THE LEARNING DISABLED ADOLESCENT

3.1 INTRODUCTION

For many individuals, learning disabilities are a life-long problem that may continue into the post high school period and adulthood (Lerner 1988:248). For learning disabled youngsters, particularly those whose learning disability is severe enough to warrant a referral to specialised education, learning disabilities may indeed be a lifelong problem. While learning disabled teenagers not only experience difficulties in school and in their social lives because of their disabilities, they must also cope with the demands and challenges presented by adolescence. According to Lerner (1988:249), many characteristics of learning disabilities and adolescence over-lap, and it is difficult to distinguish whether a particular behaviour is due to the learning disability or to normal adolescent development, or both, in which case learning, social and behavioural problems are exacerbated.

In their fight for emancipation, adolescents must resolve a conflict between a desire for security and dependence. Lerner (1988:250) states that the adolescent, in experiencing phenomenal changes in growth and appearance must develop a new self-image and learn to cope with a different physical appearance, as well as new psychological and biological drives. Handling his developing sexuality (see 3.4) can be very demanding in terms of time, energy and worry. Relations with peers become more important and peer pressure and peer values frequently outweigh opinions of parents and teachers.

According to Lerner (1988:250), when peer values differ from those of parents, family confrontation and conflict can result. According to Vrey (1979:174), successful emancipation and a reduction of dependence on parents, depends on effective orientation to the outside world and the establishment of a functional life-world; on the one hand the adolescent must be ready to take his own decisions and accept responsibility for them, and on the other hand the parents must be ready to permit this, and these two processes must occur simultaneously.

The adolescent's self-concept (see 3.4.10) is an important outcome of his relations with objects, ideas or other people and is always either positive or negative (Vrey 1979: 169). An adolescent who is accepted by his peers or significant others, will also accept himself and this will aid a positive self-concept. In order to win the approval of the group he admires he may even engage in behaviour of which he actually does not approve. Vrey (1979:180) states that, as the adolescent enters puberty and adolescence and becomes capable of abstract thought, he grasps the actual situation as compared to the ideal situation, which can lead to feelings of discontent about reality. This critical evaluation is often directed at himself, as he sees himself as the centre of the stage with everyone evaluating and criticising him. He then tries to make himself more acceptable with clothes, hair-styles and cosmetics in order to stabilise his self-image and effect self-actualisation. Lerner (1988:250) states that teenagers tend to be very conscious of themselves and how they look and compare with the group. She states that this self-consciousness can lead to feelings of inferiority and withdrawal. Cognitive problems can also seriously affect the learning disabled pupils' becoming and learning.

3.2 COGNITIVE AND METACOGNITIVE CHARACTERISTICS OF LEARNING DISABILITIES

3.2.1 COGNITIVE CHARACTERISTICS

According to Derbyshire (1991:389), an individual's cognitive ability is characterised by various distinguishable but inseparable acts of knowing, such as perception, conceptualisation, representation, intelligence, learning, thinking and memory.

Functioning as a unit, they occur in close relationship with other modalities of the child's life, such as his emotions, conation, aptitude and interest, and together form a total knowing function which is inseparably bound to the other aspects of his being, such as motor ability, language and socialisation.

The cognitive approach focuses on the significance of the learner himself and what he brings to the learning situation (Derbyshire 1991:401). The child learns and gives meaning to his world through his experiences. He learns as he incorporates new knowledge into his existing knowledge structure. Through the processes of sensation and perception, the child experiences stimuli and stores and retrieves these stimuli in memory (Lerner 1988:181). Memory is thus a vital component of cognitive processing (see 2.4.1).

The development of cognitive structures for learning is a cumulative process, and a person's current learning depends upon past knowledge and experiences (Lerner 1988:185). According to Wallace and McLoughlin (1988:30), learning is seen as the constant assimilation and accommodation of information into an existing structure

and this structure is then modified to correspond with environmental factors. Wallace and McLoughlin(1988:30) state that two systems exist within the individual: a representational system by which the person creates for himself an internal model of the world modified through experience, and an executive control system by which a person uses and directs his own cognitive and thinking processes.

The importance of intelligence is central to an explanation of learning disabilities, and may be seen as a composite of an individual's verbal and nonverbal skills predictive of academic success (Wallace and McLoughlin 1988:28). Therefore, the ability to be able to acquire, recall and use information in order to solve daily problems and cope in various situations can be revealed in a variety of ways. The learning disabled pupil is described as having an average or above average intelligence even though his ability to learn in academic settings is based on unevenly developed skills. A learning disabled pupil may be described as performing better on visual or visual-motor tasks than on verbal tasks or vice versa. Intelligence is central to the definition of learning disabilities and a lack of academic achievement, as a quantification of the discrepancy between the assumed ability and the actual school achievement, may indicate a possible learning disability, although current research has failed to demonstrate differential profiles for learning disabled persons on individual tests of intelligence, where the practice is to look for significant differences among the individual subtest scores (Wallace and McLoughlin 1988:30). Kronick (1988:34) believes that what we refer to as intelligence is in fact a measurement of someone's momentary ability to demonstrate attributes

that our society values which consequently correlates with academic functioning. Kronick (1988:34) continues to state that intelligence is in reality a description of one or more of the countless ways in which humans might make effective and innovative decisions, and intelligence has a distinct cultural bias. As society becomes increasingly multifaceted and sophisticated, demands on the individual's ability to function efficiently, effect complex judgements, possess a wide repertoire of strategies, and to master novel representational codes such as the computer, will grow.

Cognitive deficiencies experienced by the learning disabled pupil will thus have a detrimental affect on his becoming and learning.

3.2.2 COGNITIVE DEFICIENCIES

According to Wallace and McLoughlin (1988:83), cognitive problems or deficits in thought processes were widely studied within the field of learning disabilities during the eighties. There has also been an increased awareness of the difficulties encountered by learning disabled pupils in the higher-order cognitive processes.

3.2.2.1 COGNITIVE/THINKING SKILLS

Alley and Deshler (1979:184) list the following types of problems encountered by learning disabled adolescents related to their cognitive/thinking skills:

General Thinking Behaviours

Observing

Describing

Developing concepts

Differentiating and defining

Hypothesising

Comparing and contrasting

Generalising
Predicting and explaining
Offering alternatives.

Information Organisation and Management

Perceiving the organisation in material
Manipulating materials for organising
Organising multiple tasks
Using generalisations as organisers
Using concepts as organisers
Using visual imagery.

Problem Solving

Identifying the problem
Analysing the problem
Developing options for solving the problem
Decision making
Execution of decisions.

Questioning

Asking questions about the materials
Asking different kinds of questions.

Self-Monitoring of Performance

Time Management

3.2.2.2 PERCEPTUAL PROBLEMS

According to Derbyshire (1991:386), perception is seen as the interpretation of, and giving meaning to, information received by the brain. Vrey (1979:19) describes it as a unitary process in which sensation and significance attribution are seen as mutually dependent. The visual and auditory senses are the modalities that have received the most attention in the learning disabilities paradigm, with haptic and kinesthetic modalities referred to less often.

Mercer (1983:230) describes visual perception as the ability to make visual sensory stimuli meaningful by interpreting and organising them. Pupils with visual perceptual problems may encounter difficulty with spatial relations, visual discrimination, figure-ground perception, visual closure and visual memory.

Auditory perception is important in order to recognise and interpret what is heard. Auditory skill includes discrimination, association, memory and blending (Mercer 1983:230).

Perceptual deficits will affect normal cognitive development, and although many learning disabled adolescents have received perceptual training as youngsters, perceptual problems may persist, which affect progress in reading and mathematics, as well as their social life when they withdraw from social activities because of their perceptual deficiencies (Derbyshire 1991:388). Perceptual problems will be exacerbated by attentional deficits in pupils who are inclined to overlook important visual or auditory details or focus on inappropriate details. According to Vrey (1979:262), perception and as he says "...all cognitive acts" have their origin in attention.

3.2.2.3 ATTENTIONAL DEFICITS

Wallace and McLoughlin (1988:85), in reviewing the work of Hallahan and Reeve (1980), state that problems in attention have been one of the most frequently mentioned characteristics of the learning disabled population. In reviewing the work of Keogh and Margolis (1976), they state that attentional problems of learning disabled individuals fall into three categories: coming to attention, decision making, and maintaining attention.

Most of the research has focused on selective and sustained attention.

Selective attention refers to the individual's ability to respond to the relevant aspects of a task or situation and refrain from responding to irrelevant aspects. Some pupils are unable to stay with a task over a period of time and this refers to sustained attention. In general, it is believed that this problem stems from an inability to organise what they need to do to complete a task and they are subsequently distracted by irrelevant stimuli.

According to Wallace and McLoughlin (1988:86), attentional problems may be associated with or without hyperactivity, but the essential features of the ADD (Attentional Deficit Disorder) syndrome are inattention, impulsivity (see 1.2.4) and hyperactivity (see 3.4.1).

Thus, attentional problems will interfere with the learning act itself, as the degree of intensity of attention focussed on an object will affect the clarity of the image of that object. Traces of a person's experiences remain in his memory and later reactivation of the memory trace of the object will be hampered if the initial experience was not clear.

3.2.2.4 MEMORY DEFICITS

Wallace and McLoughlin (1988:87), in reviewing the work of Reid and Hresko (1981), state that memory may be described as a set of capacities that enable the individual to interact with in-coming information in order to make sense of their environment. Pupils who experience memory problems have difficulty in storing and retrieving information on demand.

Memory types crucial to learning are:

- (i) Short-term memory which holds and retrieves information for usually only a couple of seconds or minutes;
- (ii) Long-term memory which involves retention hours or days after the event;
- (iii) Rote memory, which does not require that the individual actually attaches meaning to what is remembered; and,
- (iv) Sequential memory which is the ability to retrieve the information required in a specific order(see 3.5.4).

These difficulties with memory may be attributed to the fact that learning disabled pupils do not employ strategies to assist them to remember. According to Wallace and McLoughlin (1988:88), they may be taught strategies and this could help them to perform on a par with their non-learning disabled peers.

Many learning disabled students do badly on tests that require memory skills. This is not as a result of limited memory capacity, but rather a difficulty in the management and organisation of intact memory capacity. They fail to employ strategies to help them remember, such as mnemonics, rehearsal, clustering, sorting into categories and paired association (Alley and Deshler 1979:95).

Other factors that may affect the ability to remember are :

- (i) the student's intensity of attention;
- (ii) the meaningfulness of the material;
- (iii) the student's interest in the subject; and
- (iv) the amount of drill and overlearning employed in memorising a task.

While cognitive strategies are used to make progress, metacognitive strategies are used to monitor progress.

3.2.2.5 METACOGNITIVE PROBLEMS

According to Wallace and McLoughlin (1988:88), a number of studies have indicated that some learning disabled students have metacognitive problems. In reviewing the work of Kotsonis, Torgensen and Wong, Wallace and McLoughlin (1988:88) state that learning disabled students have difficulty in metalistening skills, metamemory skills (see 2.4.3), and meta-comprehension skills (see 3.5.1).

Besides the above-mentioned difficulties related to cognitive processing abilities, Derbyshire (1991:389) makes mention of specific problems experienced by the learning disabled student with regard to cognition, such as concrete thinking, lack of organisational skills, and problems with integration.

3.2.2.6 CONCRETE THINKING

Derbyshire (1991:389), in reviewing the work of Van Niekerk (1986) and Smith (1980), states that learning disabled adolescents have difficulty moving from the concrete level of cognitive functioning to the abstract level. They need concrete or visible support in the learning of new concepts.

Wiens (1983:144) refers to an inability in the learning disabled adolescent to build, expand and adapt, and this results in learning being an unenjoyable process. Wiens (1983:144) describes the learning disabled adolescent as not being in control of his thinking and being unable to organise his world,

and thus being denied the pleasure that is derived from that control, which has a detrimental effect on his motivation.

3.2.2.7 LACK OF ORGANISATIONAL SKILLS

Derbyshire (1991:389), in reviewing the work of Smith (1980), states that the learning disabled pupil has difficulty classifying and categorising information, or putting it into its proper sequence. He also has problems understanding concepts of time and perceiving and using space around him. According to Lerner (1988:191), the way we organise our learning material has a great deal to do with how fast we learn and how well we are able to remember. Vrey (1979:280) states that the structure of the intellect is made up of internalised operations organised into schemas, and as a result of this organisation, the person adapts to his environment. These schemas, or cognitive maps, are dynamic by nature and through the processes of accommodation and assimilation, are extended, combined and reorganised to adapt to meet new needs of a changed environment. In this way a person orders his world. However, learning disabled students are not flexible, and have great difficulty in adjusting to their environment (see 3.4). Their thinking appears to be more concrete (Kronick 1988:56) (see 3.2.2.6). They perceive their attributes as being fixed, and fail to realise that others use deep processing to assist them to solve their tasks.

They accept things at face value and interpret language literally, and therefore frequently face ambiguous situations that cause stress. They fail to remember and recognise form, and they experience problems with temporal and spatial relations, compounding their language difficulties (see 3.2.2.1).

To them the world is a chaotic place where they must strive to protect their fixed self from negotiation at all costs, usually by being rigid. When focusing on new information, they frequently have problems with how much previous knowledge to invoke to bring meaning to their schema (Kronick 1988:57) (see 3.2.2.7). Bringing too little critical information to the situation at hand, results in a literal interpretation and a reduction in the probability of mastery. Literal learning disabled persons persist in their idiosyncratic, superficial interpretations beyond childhood. They do not know what they do not know because, to know this, one needs to know a great deal. They fail to recognise salient features of a schema and relate it to other similar schemata and thus increase the level of predictability. The confusion that results hinders them in ordering their world and makes them appear disorganised, leading them to conclude that they are ill-equipped to cope with the world competently. Being able to order one's world presupposes that one is able to integrate and adapt to new and changed circumstances.

3.2.2.8 INTEGRATION PROBLEMS

Derbyshire (1991:389), in reviewing the work of Moses (1981) and Smith (1980), states that the learning disabled pupil has difficulty in linking new information with existing information (see 2.4.1).

Lerner (1988:190) describes the learning disabled as not knowing how to control and direct their thinking in order to learn, gain more knowledge, or plan how to remember what they learned. They need help in finding the main idea of a lesson and its supporting facts (Lerner1988:191).

Derbyshire (1991:389) states that learning disabled pupils lack the ability to integrate related aspects of knowledge and need purposeful teaching to help them identify the essentials (see 1.2.2).

According to Derbyshire (1991:390) the learning disabled pupil has more difficulty than the ordinary child planning strategies and working problems out. This is indicative of immature or inadequate executive processing and self-regulation.

3.2.2.9 INADEQUATE EXECUTIVE PROCESSING AND SELF-REGULATION

Borkowski (1992:253) refers to self-regulation as the heart of metacognition. He believes that children acquire these self-regulatory skills as they mature and these skills allow them to analyse tasks in order to select an appropriate approach to problem-solving. Later they are able to monitor the course of their learning and perhaps adjust or revise a strategy. These components are not easily acquired and are generally not the focus of direct instruction in the classroom or of discussion in their own right. Borkowski et al. (1989:62) state that learning disabled students have been found to be deficient in the higher order processes such as strategy selection and monitoring. This could be why they experience difficulty in maintenance and generalisation of strategies. Strategy selection and monitoring are components of the concept of Metacognitive Acquisition Procedures (MAPS) (see 2.4.3.1(4)).

In reviewing the work of Kavale (1980), Borkowski et al. (1989:62) found that in answering comprehension questions learning disabled students did not apply effective reasoning strategies as well as normal students.

In reviewing studies done by Fleischner and Garnett (1987) it was found that they did not apply appropriate problem-solving strategies in mathematics as well as normal students, and in reviewing studies done by Kotsonis and Patterson (1980) which examined comprehension-monitoring strategies, it was found that learning disabled students did not effectively monitor their own comprehension of new information thereby supporting the existence of a general deficit in Metacognitive Acquisition Procedures. Borkowski et al.(1989:62) believe that explicit training using the self-instruction format combined with strategy training may be necessary for learning disabled students for them to continue to use strategies effectively and apply them to novel situations.

The generalisation of a strategy to a novel situation depends on the metamemory of the successful use of that strategy in a previous situation.

3.2.2.10 INADEQUATE METAMEMORY

Metamemory (see 2.4.3) is the knowledge a student has about his own memory functioning and memory system, and it has an influence on his understanding of himself as a learner (Weed et al. 1990: 849). Thus, the requirements of a task and the best ways to complete a task depend on his metamemorial knowledge.

Borkowski et al.(1983:460-461) state that in studies of metamemory and strategy transfer in impulsive and reflective children it was hypothesised that impulsive children have a knowledge base that is deficient regarding information about when and how to use strategy skills, indicating that metamemory rather than cognitive tempo might be the determining

factor in the strategic behaviour of impulsive children. The study also revealed that reflective children seemed to benefit more from strategy training than impulsive children.

The pattern of findings with learning disabled children revealed that specific learning deficits in learning disabled children are, in part, attributable to failures in the implementation of task-appropriate strategies, rather than deficits in memory (see 3.2.2.4) or attention (see 3.2.2.3) per se. These deficiencies in strategic behaviour are in turn paralleled by slow metamemorial development in learning disabled children.

Pressley et al.(1985:124) and Borkowski et al. (1983:460-461) refer to metamemory as introspective knowledge about the memory system, and a distinct kind of procedural knowledge. A persistent impulsive style will limit a child's experience with effective strategies and over time result in immature metamemorial knowledge.

Studies by Brown and Spronson (1987:219) on normal secondary school pupils showed that improvements in strategy use did not only result from teaching them mnemonic strategies but was due to involving them in the structuring of the materials in order to apply the strategies, as well as giving them considerable practice in the procedure before implementing it on their own. Wiens (1983:145), in reviewing the work of Torgensen (1977b), suggests that learning disabled pupils lack an ability or an inclination to develop and use efficient strategies (see 2.3.1).

Intervention to enhance memory skills (see 2.6) in learning disabled pupils emphasises the necessity of explicit strategy instruction as well as information on the utility of the strategy and corrective feedback regarding the pupil's success with the strategy. According to Palinscar and Brown (1987:67) memory problems may result from a failure to approach memory tasks in a strategic manner reflective of metamemorial awareness, or prior knowledge states which cause changes in strategy use.

Inadequate metamemory will therefore have a direct bearing on poor problem-solving skills.

3.2.2.11 POOR PROBLEM-SOLVING SKILLS

Borkowski et al. (1983:460) believe that impulsive children make more errors than reflective children on serial recall, inductive reasoning, recognition memory and visual discrimination tasks. Reflective tempo has also been related to the use of efficient problem-solving strategies involving task-evaluation and analysis of the quality of the solutions.

Cook and Slife (1985:5-13) offer some reasons as to why the learning disabled are poor problem solvers. They propose that handicapped learners are often protected too much and therefore lack experience in recognising a problem when it exists, resulting in a major weakness, as recognising that a problem exists is fundamental to problem-solving ability. Learning disabled pupils frequently look for a quick answer and are not prepared to consider several options through thoughtful evaluation to choose the best solution to a problem, thus prematurely limiting their field of options.

Learning disabled students who view their attempts as futile are not willing to risk and therefore do not have the opportunity to learn from their mistakes. They do not want to check or monitor their solutions because they want to avoid the consequences of being wrong. Their thinking is rigid and they cling to the gathering of facts which they might put forward in an illogical fashion, or reject possible solutions out of hand because they prefer to believe that "that's not the way things are done" (Cook & Slife 1985:10).

3.3 LINGUISTIC MANIFESTATIONS OF LEARNING DISABILITIES

3.3.1 LANGUAGE DEVELOPMENT

Wallace and McLoughlin (1988:105) state that language is composed of many interrelated factors. The major dimensions of language, as studied by linguists, have been identified as phonology, morphology, syntax, semantics and pragmatics.

While phonemes, or speech sounds, have no meaning in themselves, they become meaningful when they conform to standards of accepted usage within a language. A morpheme is the smallest unit of meaning in a language, and can be a complete word on its own, or contribute to the meanings of words.

Syntax refers to the arrangement of words in meaningful sequences, while semantics refers to the ability to obtain meaning from words and sentences. Pragmatics, a recent focus of study, is concerned with the way language usage affects success both inside and outside the classroom, taking into account the relationship between speaker and listener and the interaction and level of understanding they each achieve.

There are various theories on how language, being a uniquely human phenomenon, develops in children. Wallace and McLoughlin (1988:107), in reviewing the work of Lenneberg (1964,1967), state that language has a biological basis and children learn language as their cognitive processes develop and maturation takes place. Wallace and McLoughlin (1988:107), in reviewing the work of Chomsky, on the other hand, report that he believes that children have innate linguistic universals that allow them to build a theory of grammar which helps them to comprehend and produce sentences. According to Vrey (1979:144), language is the means by which the person actualises himself, communicates with people who are important to him, is assured of their acceptance, makes his own self-evaluation and thus assigns meaning to his world.

Whichever theory one espouses, the fact that a child has a language problem will greatly inhibit his learning progress.

3.3.2 LANGUAGE DEFICIENCIES

Deficiencies in language, particularly semantic deficiencies, will hamper a pupil's clearer understanding of concepts and will also hinder his social development (Derbyshire 1991:392).

The proper acquisition of insight is impeded, and social norms and values can be thus misconstrued. Derbyshire (1991:392) states that there is a connection between the learning disabled child's language deficiencies and his motor and perceptual deficiencies, as well as his cognitive functioning. The learning disabled child's language deficiencies are related to one or more of the following aspects of his language:

- (i) auditory-receptive language (listening);
- (ii) auditory-expressive language (speech);
- (iii) visual-receptive language (reading); and
- (iv) visual-expressive language (writing).

According to Wallace and McLoughlin (1988:108), many children with specific learning disabilities do not follow the normal developmental stages in language acquisition. The term "developmental aphasia" is used to describe the child who has severe difficulty in acquiring oral language, and implies that the disorder is related to a central nervous system dysfunction (Lerner 1988:322). Various types of spoken language disorders are referred to as problems of inner language, receptive language (receptive aphasia) and expressive language (expressive aphasia).

3.3.2.1 INNER LANGUAGE PROBLEMS

Wallace and McLoughlin (1988:110) state that the term inner language has been referred to as inner speech (Vygotsky 1962) and preoperational thought (Piaget 1952). The process of acquiring inner language is believed to involve the establishment of verbal imagery for words and concepts. Vrey (1979:152) describes language as a medium of thought. By means of language we symbolise objects, concepts, generalisations and attitudes.

The word or the linguistic symbol then represents the situation or generalised concept we have in mind. Part of the problem that the learning disabled pupil experiences is that he has difficulty transforming experiences into verbal symbols, and therefore inner language deficits seriously affect learning.

3.3.2.2 RECEPTIVE LANGUAGE PROBLEMS

According to Wallace and McLoughlin (1988:110), receptive language is the ability to understand verbal symbols. An individual with a receptive language disorder may hear what is said but be unable to comprehend because he has a problem associating names with objects and recalling names. Some pupils may have difficulty perceiving speech sounds. This may apply particularly to hyperactive children (see 3.4.1) or those with a short attention span (see 3.2.2.3) as they are often unable to localise speech sounds because they are not able to attend to the sound for long enough to derive meaning from it. Some pupils may have problems understanding words, especially more abstract concepts. They find concrete words easier to understand because these words are within their daily experiences.

Some pupils may have difficulty understanding the structure of phrases, sentences, paragraphs or other meaningful units because they have learned too many words in isolation rather than within the context of a sentence. They are confused by words in sentences with semantics that are not familiar. Wallace and McLoughlin (1988:111) believe that this suggests difficulty in comprehending and producing deep structure or the true meaning of an utterance.

This inability to follow grammatical structure leads to difficulty in establishing the correct formulation of words and sentences. Often pupils are confused by long sentences. Being bombarded with too much language to comprehend may present difficulties in following instructions as they cannot relate what they hear to the subsequent motor or cognitive skills in order to complete the instruction.

3.3.2.3 EXPRESSIVE LANGUAGE PROBLEMS

Wallace and McLoughlin (1988:114) describe an expressive language problem as an inability to use language as a means of communication.

Pupils with this problem have difficulty retrieving words for spontaneous usage, or have difficulty planning or organising words and phrases to express an idea. The inability to express speech sounds is considered to be a motor problem rather than a cognitive problem, but some pupils with a language disorder may omit words or add inappropriate words, use incorrect grammar or distort the order of words and phrases. They may even try to avoid auditory communication or express themselves by using gestures, synonyms or the actual definition of the word.

From a pragmatic perspective, students with learning disabilities seem more vulnerable to problems in language usage. Wallace and McLoughlin (1988:117), in reviewing the work of Bryan, Donahue and Pearl (1981), state that learning disabled students were less sensitive to the age differences of their listening audience, were less able to take the perspectives of their listeners into consideration, more often failed to request clarification when given an ambiguous message and in general were less skilled as conversational partners than their non-disabled peers. They were also found to have poorly developed role-taking skills and were less competent than their non-disabled peers in terms of language complexity. Being at a disadvantage with regard to communication may have a negative influence on a pupil's psychosocial development.

3.4 PSYCHO-SOCIAL CHARACTERISTICS OF LEARNING DISABLED ADOLESCENTS

According to Hurlock (1981:230), one of the most difficult developmental tasks of the normal adolescent relates to social adjustment. The most important and often the most difficult are those related to the influence of the peer group, changes in social behaviour, new social groupings, new values in friendship selection, new values in social acceptance and rejection and new values in the selection of leaders.

Hurlock (1981:231) in reviewing the work of Horrocks and Benimoff (1966), describes the peer group as being the adolescent's real world. Here he finds support for his efforts at emancipation and here he is evaluated by others who are presumably his equals and his self-concept is revised. Of all the changes that take place in social attitudes and behaviour, Hurlock (1981:231) believes that the most pronounced is in the area of heterosexual relationships. Social activities with members of the same or opposite sex usually reach a peak in the adolescent years. Whether prejudice or discrimination will increase or decrease during adolescent years will be greatly influenced by the environment in which the adolescent finds himself and the attitude and behaviour of friends and associates.

According to Perlmutter (1986:340), school age children and adolescents with learning disabilities tend to be less liked than their non-learning disabled classmates. Perlmutter (1986:340), in reviewing the work of Bryan and Perlmutter (1979), states that learning disabled children and adolescents appear to be disliked by their peers and are also less well regarded by their parents, their teachers, and other adult observers who are not aware of their diagnoses.

In general it appears that the learning disabled pupil has a lower sociometric status than his non-learning disabled peer.

A Behaviour Problem Checklist (Perlmutter 1986:346) designed by Quay and Petersen (1975) found that learning disabled pupils lacked social competence. On other tests related to anxiety and low peer status it was revealed that anxiety was proportional to low self-esteem, and slightly related to the relative status enjoyed by the learning disabled subjects. Peers rated learning disabled students with better social skills (those who were better able to decode and read cues in the changing environment) as well-liked. Not well-liked learning disabled pupils were those who had difficulty decoding the more subtle cues in the social environment (Perlmutter 1986:349). Learning disabled adolescents as a group were found to not properly decode that which is presumed to be necessary for successful peer relations (Perlmutter 1986:351). According to Bruck (1986:361) adjustment problems are a major stumbling block in the development and progress of the learning disabled individual. Academic failure, parental reactions, negative teacher feedback and peer-relationship problems with the opposite sex affects psychological adjustment and confirms opinions that a learning disability is a syndrome with a longlasting history (Bruck 1986:372-373).

According to Derbyshire (1991:384-385), it is generally accepted that a learning disability is based on a neurological dysfunction. As a phenomenon it manifests itself as a heterogeneous category where each individual has his or her own combination of symptoms which impede not only the learning ability but the total development of the learning disabled child.

In spite of the emphasis on sensory and perceptual deficits in young children, these problems often persist into adolescence where they may adversely affect the development of a good self-concept and healthy social relations. Hyperactivity as a behaviour manifestation has been described as the inability of the child to refrain from reacting to extrinsic stimuli.

3.4.1 HYPERACTIVITY

Derbyshire (1991:394) distinguishes between motor hyperactivity, manifested in an excessive motor mobility and inability to keep behaviour within the situational demands, and sensory hyperactivity, also known as distractibility of attention, where a pupil is inclined to be easily distracted by irrelevant stimuli. Derbyshire (1991:395) in reviewing the work of Reid and Hresko (1981) and Van Niekerk (1986), states that while some researchers claim that hyperactivity improves with age, others believe that hyperactivity persists into adolescence and places an additional burden on the learning disabled adolescent, impeding his growth to maturity because of its devastating social and affective implications.

3.4.2 PERSEVERATION

Mercer (1983:449) describes perseveration as the repetition of a behaviour long after the response has ceased to be appropriate. Pupils with this problem have difficulty switching from one activity to another, or a pupil may continue to talk about a certain subject long after others in his group have changed the topic. This problem can interfere with academic success and interpersonal relationships.

3.4.3 DISTURBED BEHAVIOUR

The learning disabled adolescent may sometimes exhibit disturbed behaviour that hinders him in his association with peers or adults. Examples of this type of behaviour are: disinhibition, aggression, anxiety, negativity, temper tantrums, irritation, a poor venturesome attitude, a fear of contact with his environment and with other people, frustration, impulsiveness and juvenile delinquency (Derbyshire 1991:395).

3.4.4 IMPULSIVITY

Mercer (1983:447) describes an impulsive pupil as one who talks or acts too quickly without considering the consequences. An impulsive pupil will act before thinking and this will have a negative impact on his social life and academic skills. (See 1.2.4 and 3.6.1)

3.4.5 DISTRACTIBILITY

For some pupils irrelevant and inappropriate stimuli are too overpowering and lead to the learning disabled spending less time concentrating on their work and more time in non-productive behaviour than their peers (Mercer 1983:447). This leads to academic failure and may in turn result in the pupil withdrawing socially.

3.4.6 WITHDRAWAL

Withdrawal may follow a learning disabled pupil's feelings of incompetence due to failure, and he may thus become isolated and develop an inability to communicate with his peers or adults (Derbyshire 1991:395). Withdrawal may also indicate a hypo-activity, a condition where the pupil reacts slowly to instructions, often seeming to be day-dreaming. The pupil does not actively participate in the learning situation and does not seek out to explore social relationships. This can be particularly damaging during adolescence when socialising is vital to developmental goals.

3.4.7 PASSIVITY OR LEARNED HELPLESSNESS

Peterson and Seligman (1987:189), in reviewing the work of Abramson (1978), state that the reformulated learned helplessness theory proposed that causal attributions were the critical variables missing from the original theory as it applied to humans: internal attributions about negative events produce lowered self-esteem and global, stable attributions leading to generalised helplessness across situations and time (see 1.1, 1.2.2, 1.4, 3.4.10, 3.6.2 and 3.6.4). The theory seeks to explain why some people become helpless following an experience with uncontrollable events while others do not: it is assumed that people react to events in accordance with their interpretations and that these interpretations are determined by the events themselves as well as by the biases that people impose on the events.

Learning disabled adolescents exhibit passivity and behave as inactive learners. They prefer to wait for the teacher to instruct them to act and seldom request clarification of a given task, or voluntarily ask questions indicating that they are analysing a task in terms of identifying the problem. Kronick (1988:47) describes the learning disabled student as not always understanding others' feedback to their productions and therefore being uncertain about which aspects require clarification.

Being unclear as to what constitutes an adequate product they are unaware of how to alter their productions accordingly and this leads to feelings of helplessness and of not being in control of outcomes. When future outcomes are unpredictable, people are inclined to focus on momentary goals rather than on extended ones, and in the absence of a predictable outcome, or when

one anticipates a negative outcome, it does not seem worthwhile to invest the time and effort.

In a study done by Diener and Dweck (1980:940) their findings suggest that success does not act as a buffer against the negative aspects of failure for helpless children. Helpless children do not recognise or remember the actual extent of their success, nor do they view their present success as predictive of any future success.

Kronick (1988:91) states that as the learning disabled students do not see themselves as being involved in the creation of outcomes they may use learned helplessness in order to create ambiguity: their lack of involvement ensures that they remain in control of a situation and that change does not occur; they prefer to have others assume that they choose to be disinterested, rather than admit to the fact that they are unable to handle a task competently. Parents who have perhaps compensated for their own ambivalent feelings by over-protecting their children may have prevented them from gaining valuable experience and a sense of mastery over their environment (Kronick 1988:74). A child who has thus missed opportunities to learn may believe that he is unable to cope with his world competently, and therefore avoid threatening situations that he believes exceed his capabilities.

Kronick (1988:134), in reviewing the work of Doyleys (1976), states that mothers of learning disabled children who dispensed too many rewards and who asked questions at inappropriate junctures provided excessive scaffolding. This was then compounded with placing the pupils in special programmes of high structure so that the learned helplessness was thoroughly consolidated.

Not feeling in control of their outcomes and doubting their own ability results in a lack of confidence and decline in motivation or willingness to take risks.

3.4.8 LACK OF MOTIVATION

By the time the learning disabled pupil in specialised education reaches secondary school he has already experienced many years of failure. This has caused him to doubt his abilities and view future efforts as futile. These beliefs have lead to constant frustration in the face of academic difficulties. A low persistence level and the desire to give up contributes to further failure reinforcing the belief that he is not capable and a vicious cycle emerges. Many students in specialised education appear to be unaware of the effort they should expend to succeed and if they do succeed they believe that they were lucky (see 2.3.1). Licht and Kistner (1986:225) confirm that many learning disabled pupils view any success as luck, help from the teacher, or that the task was easy.

According to Adelman and Taylor (1983:384): " If a student is motivated to learn something, (s)he often can do much more than anyone would have predicted was possible. Conversely, if a student is not particularly interested in learning something, resultant learning may not even be close to capability." Motivating the learning disabled adolescent is no easy task for a teacher: the frequency of failure and the avoidance of risk-taking complicate the issue. According to Zigmond et al. (1986:16), the learning disabled adolescent needs a carefully designed programme to hold his interest and motivate him to want to learn. They need programmes that have success built into them and they enjoy materials that deal with the subject of being an adolescent.

In order to appeal to the learning disabled adolescent, learning activities must appear "legitimate" and useful and be seen as of value for their future. Added to this, the class of learning disabled adolescents in a school for specialised education all differ in terms of their learning difficulties and interests and each is in need of much individual attention. This complicates the task of the teacher considerably and it would be most beneficial for the pupils to be helped to become more independent as learners. Licht and Kistner (1986:230) believe that there is considerable evidence to suggest that with increasing age comes increasing vulnerability to the debilitating effects of failure, therefore urgent intervention is necessary.

Licht and Kistner (1986:236) report that studies confirm that feedback from teachers plays a vital role in the way learning disabled teenagers see themselves. Praise for poor work leads them to believe that the teachers view their ability as low; positive feedback from the teacher must be seen as being contingent on effort and needs to be specific about what could lead to an improved performance. According to Kleinhammer-Tramill et al. (1983:62) simply rewarding pupils for various behaviours without regard for the effects of reinforcement schedules and without corrective feedback, may have the paradoxical effect of decreasing the probability of the desired behaviour. They add that the problem may be exacerbated by the varying reinforcements received from class to class as well as from home and school. Licht and Kistner (1986:246) believe that learning disabled students need *explicit* information on how to try harder in order to improve.

Harrison (1991:36) states that motivation can vary depending on what factors the individual attributes

success to: if he perceives success as stemming from luck or outside forces over which he has little control, then little faith will be placed in personal effort and ability. On the other hand persons who see themselves in control will invest more effort to attain success. A contributory factor to being in control is being aware of the characteristics of the task at hand and of one's own resources. In reviewing the work of Garmston (1985) and Novak (1977), Harrison (1991:36) cites effort-driven processes as in a sense being motivational, and change being equal to the product of a shared dissatisfaction, and success perceived as spurring the person on to additional effort (see 2.3.3.4). He adds that Kaufman (1983) describes a need as a gap between a current and a desired state; if the current and the desired states are congruent then no need exists.

It is this need that motivates the individual towards given effort. Many learning disabled adolescents in specialised education admit to being quite content with the status quo and resist any attempt to change their behaviour. In many cases they manage to just pass and therefore see no need to put more effort into their studies in spite of pleas from parents and teachers that they possess the potential to do better.

Elliot and Dweck (1988:5) studied the differences in the goals pursued by learning disabled and non-learning disabled pupils: non-learning disabled pupils were mastery orientated and used feedback to establish mastery and perceived their goal as increasing their ability; the learning disabled pupils were performance orientated and their goal was to maintain positive judgement of their ability and avoid any negative evaluation by seeking to prove, validate or document their ability and not discredit it.

3.4.9 SOCIAL SKILLS IMPERCEPTION

The parents of learning disabled adolescents in specialised education frequently speak of the loneliness and isolation experienced by their children as they are out of the mainstream and although they are encouraged to join clubs and mix with other youngsters, they are often left out. This may be due in part to the fact that the pupils are at a separate school, but could also be as a result of poor social skills.

According to Bryan and Bryan (1983:57) learning disabled children have been described as exhibiting poor judgment in social and interpersonal contexts, as having low impulse control and considerable intolerance for frustration.

McConaughy (1986:101) states that researchers studying a variety of specific social-emotional and behavioural problems of learning disabled boys between the ages of twelve and sixteen, found them to be less self-satisfied, more delinquent and less flexible compared to control subjects. Parents in the studies rated the adolescents negatively on social skills and sociability. They appeared to exhibit poorer conversational skills, were less able to interpret non-verbal cues and had difficulty interacting with peers. Studies examining the behaviour of older learning disabled youths found them to have more antisocial and rebellious patterns of behaviour than their non-learning disabled peers. Other behaviours reflected were depression, social-withdrawal, anxiousness, obsessive-compulsiveness, sex problems and cruelty. Bryan and Bryan (1983:69) report that teachers judge learning disabled pupils less favourably than normally achieving pupils throughout the pupil's school career. They are experienced as less co-operative, less attentive, less organised and

less capable to cope with new situations, less socially acceptable to others, and less tactful than their non-disabled peers (see 3.4).

Raviv and Stone (1991:602) state that while social experiences are not only desired by adolescents, but are very necessary, some adolescents place too much emphasis on them to escape academic frustrations. Often these pupils have social difficulties due to social-perceptual problems and they fail to read interpersonal cues. In reviewing the work of Bryan and Bryan (1981), Raviv and Stone (1991:602) state that they can mistakenly perceive themselves as being popular, when in fact they are socially isolated. According to Bryan and Bryan (1983:74) parents found their adolescents as having a low frustration tolerance, reacting violently when frustrated, getting along less well with authority figures, and being less persistent more impulsive and less able to concentrate.

3.4.10 POOR SELF-CONCEPT

Vrey (1979:47) describes self-concept as being highly meaningful to the person concerned and never neutral (see 1.2.2.5). It refers to a configuration of convictions one has of oneself, and attitudes that one has towards oneself that are dynamic. The self-concept is the focal point of one's relations in the life-world. Derbyshire (1991:396) states that the learning disabled adolescent's continual failures make him afraid and confused in his search for his own self, and thus the formation of an own and a group identity suffers. Over or under estimation of themselves results in unsuccessful conduct and actions and so their self-confidence wanes, they feel inferior and often have a poor self-image and self-identity.

Poor relations with parents and failure to meet their expectations, and poor academic results lead the pupil to lose faith in his abilities and his maxim becomes "I can't".

In reviewing the work of Burgerman and Reinart (1985), Derbyshire (1991:396) attributes much of the problem with self-concept to failure at the social level, where social interaction gives the adolescent an opportunity to build self-confidence and a feeling of self-worth.

Wiens (1983:146), in reviewing the work of Brown (1978), discusses how early failure experiences result in the erosion of the child's self-concept. Brown states that learned helplessness can be acquired early when a child's objective knowledge of his own competence is contaminated by his feelings of a lack of competence. Wiens adds that the learning disabled adolescent has a particular reason for being a passive learner, and as a result has often learned to be dependent on others. This passivity will be an obvious liability when it comes to tasks requiring active structuring of information and problem solving, which is what most schooling requires, particularly in the secondary section. To meet the demands of the secondary school curriculum and improve his self-concept, the learning disabled adolescent must reach a level of competency in the following skills:

- (i) concentration
- (ii) reading for information
- (iii) memorisation
- (iv) answering questions and solving problems, and
- (v) writing paragraphs or assignments.

3.5 ACADEMIC DEFICITS OF LEARNING DISABLED ADOLESCENTS

Mercer (1983:274-275) outlines the demands made on the learning disabled student in the secondary section where teachers seem to rely heavily on the lecture method and students are expected to keep pace with material presented. They need to be able to cope with a minimum of feedback or help from the teacher and complete homework and assignments; they must be able to gain information from listening, reading information from books and studying; they must be able to express themselves verbally by taking part in class discussions, or in writing of tests, and descriptive or narrative prose.

3.5.1 READING AND COMPREHENSION DIFFICULTIES

Lerner (1988:348) states that although students with learning disabilities have difficulties in many areas of learning, for 80% poor reading is the major academic problem. McLain (1991:169) reports that the definition of reading has changed from a view of a collection of isolated skills to a total process of interrelated skills and strategies that require the reader's active role during comprehension. According to Paris and Oka (1989:33), reading is a process of constructing meaning from the ideas suggested by the text according to the reader's prior knowledge, purpose, available strategies and understanding of the task and setting. However, many learning disabled students seem to hold naive concepts about reading strategies: some believe that the main idea is the first sentence of a paragraph and that summarising means that you tell everything you can remember about a story. Skimming is reading as many little words as quickly as possible and that "good" readers never have to read a passage more than once. They do not engage in active monitoring and evaluating of their own comprehension and appear to be unable to recognise obvious absurdities or inconsistencies in

certain passages (see 6.9.2). They appear to suffer a breakdown in metacomprehension skills which involve:

- (i) clarifying the purposes of reading,
- (ii) identifying the important aspects of the passage,
- (iii) monitoring on-going comprehension by self-questioning and backtracking, and
- (iv) taking corrective action when failures in comprehension are detected (Graves 1986:90).

Besides the problems poor readers have related to phonological processing, which involves metacognition, and is concerned with conscious and preconscious manipulation of phonemic units of speech, they also experience inferior phonemic isolation, phonemic segmentation and phonemic substitution skills compared to average readers. These lower levels of word attack skills and the students' failure to repair any break-downs have a direct affect on comprehension.

According to McLain (1991:170), it is the awareness and use of compensatory strategies (fix-up strategies) that differentiate the good from the poor reader. Poor readers seem to have little awareness that they must attempt to make sense of what they are reading. Instead they focus on reading as a decoding process rather than a meaning-getting process. As they are unaware of their comprehension of the text, they rarely use fix-up strategies.

3.5.2 WRITING AND SPELLING PROBLEMS

Englert et al.(1988:18) state that research has shown that expository writing depends on two important types of knowledge: knowledge of the writing process, i.e. planning, drafting, editing, revising and knowledge about the organisational structures that underlie generating, subsuming and the ordering of ideas to produce well-formed prose.

They further believe that learning disabled students possess metacognitive deficiencies that may have serious consequences for writing where performance is dependent on the selection of appropriate writing strategies and the ability to continually self-regulate and monitor their text to detect comprehension breakdowns. In a study to examine learning disabled students metacognitive knowledge about expository writing and the relationship between this knowledge and writing performance, they discovered that learning disabled students held serious misconceptions about the process of writing and how to gather and integrate information from multiple sources and organise their ideas. They failed to appreciate the utility of being strategic and being able to control and regulate the writing process. They seemed to rely heavily on external cues and the teacher's direction in determining how much to write and whether the task was satisfactory. They failed to recognise inconsistencies in the requirements of the text and to monitor the completion of the text.

When the students' knowledge about the organisation of ideas was tested, it became apparent that they had difficulty in analysing the text for organisational patterns that bind main ideas and minor ideas together. They seemed to focus on isolated details and words and were unable to subsume their gathered information under conceptual categories, displaying problems with integrating their information into a meaningful whole.

A poor writing ability is often exacerbated by a poor spelling ability and learning disabled students will refrain from writing elaborate texts for fear of incurring spelling errors. Lerner (1988:405-406) refers to spelling as "the invention of the devil".

As only one pattern or arrangement of letters is acceptable there is no compromise. Learning disabled students who are poor at reading and decoding words will probably be poor spellers. Poor spellers may have difficulty re-visualising the words if they experience a visual memory problem. If they have deficits in auditory perception or auditory memory, they will have difficulty holding the sounds or syllables in their minds. A motor memory deficit may impede spelling as the student will have to stop repeatedly to consciously recall the configuration of a letter or word.

3.5.3 MATHEMATICS AND PROBLEM-SOLVING DIFFICULTIES

Alley and Deshler (1979:155-157) point to problems associated with place values and reading problems that affect competence in mathematics. In reviewing the work of Linville (1970) and Barney (1972) they suggest that the vocabulary and syntactical structure of reading involved in mathematics are causes of difficulty, specifically the following eight essential variables:

- (i) problem length (narration);
- (ii) narratives with unnecessary or insufficient data;
- (iii) restatement of the problem;
- (iv) punctuation (complex and compound sentences);
- (v) abbreviations;
- (vi) technical words, such as properties and algorithm;
- (vii) infrequently used words such as subset and cosine; and
- (viii) words with multiple meanings such as interest, properties and square.

Furthermore, it has been suggested that learning disabled students have a "rote computational habit" and that they, like low-achieving students, are inclined to

focus their attention on the numbers rather than attempt to carefully read the problem and select a strategy to solve it (see 6.9.4). They do not persist in the search for information, they use a trial and error problem-solving approach, and they provide many incorrect answers.

3.5.4. MEMORY PROBLEMS

According to Lerner (1988:181-187) memory pertains to sensations and data already received and perceived. The ability to store and retrieve previously experienced sensations and perceptions when the stimulus is no longer present is called memory. Alley and Deshler (1979:95) refer to three important concepts involved in long-term storage and retrieval of reading material: (i) recall; (ii) retention; and (iii) recognition (see 3.2.2.4).

Students with learning disabilities frequently have difficulty recalling what things looked like or sounded like. This may be because it is necessary to retain and compare a past experience with a novel experience in order to interpret and organise a new experience (see 3.6.3). The inability to remember words, directions, or explanations exemplifies disabilities of remembering language. Memory problems may also be related to a specific perceptual process like visual or auditory memory. Kronick (1988: 184) states that learning disabled students who do not perceive the connectedness of all experience, who do not perceive the whole (gestalt), but treat each exemplar or event encountered as novel, decrease the probability that the event will be remembered, or assimilated to the point of automaticity and abbreviated to its most concise form. Acquiring automatisisation on certain tasks frees the individual to expend more effort on complex problem-solving (see 6.9.3).

However, the learning disabled are noted to be slower and more gradual in the acquisition of automatised abilities than their non-learning disabled peers.

3.6 LEARNING DISABLED ADOLESCENTS AND STRATEGY USE

Scott (1988:30) in reviewing the work of Baron (1978) and Tannenbaum (1983), states research has indicated that most academic failures can be attributed to surmountable strategy difficulties rather than limitations in capacity. Nonintellectual factors such as learning styles and strategies can either foster or inhibit the full use of a person's ability. While gifted learners show a unique pattern of learning strategy patterns, students with learning disabilities show traits that are opposite: they lack concentration skills (see 3.2.2.3), they are distractible and impulsive (see 3.4.4 and 3.4.5), they feel that others control them, they depend on others to direct them (see 3.4.7) , and they give up easily (see 3.4.8). They rarely introduce strategies to aid their learning.

3.6.1 NON-STRATEGIC BEHAVIOUR

According to Kurtz and Borkowski (1987:130) an impulsive response style is associated with inefficient problem-solving, failure to generalise newly learned strategies and poor self-control in social situations. Generally, learning disabled pupils have a metacognitive deficit which can be explained as a deficiency in both knowledge about cognitive strategies (such as rehearsal, elaboration or organised memory search) and executive processing (such as monitoring, strategy selection or strategy modification). In contrast to their more reflective peers they possess underdeveloped memory strategies (see 1.5.1.1.), they display less sophisticated metamemorial knowledge (see 3.2.2.10) and they have immature executive functioning (see 3.2.2.9).

As the development of metacognitive knowledge is thought to be longitudinal in character, early primitive forms of strategic knowledge are hypothesized to be causally linked to the emergence of more complex, academically relevant skills and strategies. These early forms of metacognition teach the child about important strategy attributes, for example, when and how strategies are , and are not, applicable. General beliefs about self-efficacy emerge from repeated encounters with productive strategies (see 2.4.3), and executive routines such as strategy selection and invention mature only after lower level strategies are acquired. Not choosing a strategy to help one to remember has been called a "production deficiency" (see 1.1 and 2.4.3.1.).

3.6.2 PRODUCTION DEFICIENCIES

According to Meichenbaum (1971:115), Flavell and his co-workers offered the explanation of a production deficiency as early as 1967 to describe the influence of self-verbalisations on behaviour and poor performance. Wiens (1983:146) describes the learning disabled adolescent's behaviour as being like that of a young learner (see 1.1). He refers to "production deficiency" as occurring when a student lacks a general and pervasive willingness to use strategies. Furthermore, Wiens believes in the developmental nature of the learning act in an intelligent, planful task-adaptive manner that is lacking in the learning disabled adolescent and this results in passive, dependent and non-strategic behaviour (see 1.2.2).

According to Meichenbaum (1971:115), Bem (1970) has suggested that this condition be called a comprehension deficiency hypothesis. The developing child is characterised as going through three stages in which he:

- (i) does not mediate or regulate overt behaviour verbally;
- (ii) does not spontaneously produce relevant mediators; and
- (iii) does not comprehend the nature of the problem to discover what mediators to use. Thus problem-solving is viewed as a three-stage process of comprehension, production and mediation, and poor performance can result from a deficiency at any one of these stages. A breakdown at any stage will have an adverse effect on the successful acquisition of a strategy and the application of the strategy to a novel task in a meaningful manner (see 2.4.1). Pupils can be taught to use strategies and their learning does improve, but once the prompt is withdrawn they often revert to their old bad habits (see 1.1). Unfortunately, the learning disabled adolescent usually also has a backlog of basic content knowledge that exacerbates his problem.

3.6.3 DEFICIENCIES IN BASIC CONTENT KNOWLEDGE

Schumaker et al. (1986:352) state that by the time most learning disabled adolescents reach the secondary school they are already markedly deficient in basic content knowledge (see 2.4.1). They seem to be behind their non-learning disabled peers in the amount of content they have mastered. This may be due to the fact that they lack the necessary skills to master content at the same rate as their non-learning disabled peers, or because of their long-term placement in special programmes that emphasise skill acquisition rather than content acquisition, or that they are perhaps denied exposure to a large amount of content information. As a student's ability to successfully benefit from a curriculum is in part based on his existing knowledge

base of prior knowledge, which enables him to better interpret the significance of the material presented, to select main points and disregard trivia, the learning disabled adolescent finds himself in a very perilous position.

Kronick (1988:101-108) refers to this problem as a breakdown in schematic knowledge, where a learning disability is a breakdown in the sense of the connectedness of the schemata across contexts (see 3.5.4). The learning disabled are inclined to be inflexible and regard all sequences as fixed (Kronick 1988:114). As a result they do not critique their own productions by asking themselves questions in order to become more flexible and functional.

3.6.4 LACK OF SELF-QUESTIONING TECHNIQUES

A lack of self-questioning techniques is a common trait of the impulsive pupil who does not reflect and consider his actions (see 1.2.4). Meichenbaum's cognitive behaviour modification programme (Meichenbaum 1982:130) involving self-instructional techniques was designed to help pupils to slow down and ask themselves questions before responding (see 6.9.2 and 6.9.4). This was as a means of developing more self-control in the learning disabled student who answered before thinking, and was designed to encourage individual mediational skills through guided self-questioning techniques (see 2.5.2.2). Being passive learners, they are not used to identifying alternatives and this inhibits generalisation or transfer.

3.6.5 GENERALISATION PROBLEMS

According to Deshler et al.(1984:114), for any intervention to be considered effective, generalisation (or transfer) must be achieved.

Generalisation has been defined as the occurrence of relevant behaviour under different non-training conditions such as across subjects, settings, people, behaviours and time, without the scheduling of the same events in the new conditions as in the training conditions. Research by Deshler et al.(1984:114) with learning disabled adolescents focussed on a number of different levels of generalisation, and inconsistencies were reported. Many learning disabled adolescents were unable to master in-setting generalisation up to an automatic level, and out-of-setting generalisation was poorly achieved by most students.

A reflective view of the literature has clearly shown that learning disabled adolescents in the secondary section of the school are at a distinct disadvantage unless they receive urgent intervention to meet their special educational needs.

Following the above essential analysis of the learning disabled adolescent, his special needs become apparent. More specifically, the analysis indicates that, because of the child's inappropriate use of strategies, the following areas should receive particular attention:

- (1) Strategy instruction with regard to cognitive and metacognitive characteristics, particularly the development of general strategies involving concentration, and specific strategies encompassing reading for information memorisation, problem-solving and answering questions, and writing assignments. It is hoped that these strategies will promote better thinking behaviours, information organising and management, self-questioning, self-monitoring of performance and time manage-

ment, as well as selective and sustained attention, better storage and retrieval techniques, and a more critical approach to tasks.

- (ii) Psycho-social characteristics, particularly the improvement of the learning disabled adolescent's self-concept, where as a result of academic progress, motivation and self-concept will be enhanced. This will, in turn, promote better self-control, involvement and self-activity, help to contain impulsivity and distractibility, and reduce the debilitating effects of learned helplessness and passivity.

3.7 SYNTHESIS

This chapter serves to draw a profile of the types of problems that may be experienced by a learning disabled adolescent. Each individual is different and may have a combination of different problems in different degrees of severity. In general individuals experience problems from each area, namely cognitive and metacognitive deficits (e.g. thinking, perception, attention, memory, organisation, integration, processing, self-regulation and problem-solving), linguistic deficits (e.g. language development and deficiencies in inner, receptive and expressive language), psycho-social problems (e.g. hyperactivity, perseveration, disturbed behaviour, impulsivity, distractibility, withdrawal, passivity, lack of motivation, social imperception and poor self-concept), academic deficits (e.g. reading and comprehension difficulties, writing and spelling problems, mathematics and problem-solving difficulties and memory problems) and problems related to lack of strategy use (e.g. production deficiencies, deficiencies in basic content knowledge, non-strategic behaviour, lack of self-questioning techniques and problems with generalisation and transfer).

Learning disabled adolescents have very special needs which have to be met in order for them to reach their potential and achieve their mandate in life. They are in urgent need of assistance from the secondary school teachers to help them cope with their difficulties, feel more in control of their world and improve their self-concept.

3.8 PROJECTION FOR NEXT CHAPTER

The next chapter discusses the role of the school for specialised education in the life of the learning disabled adolescent in the light of the advantages and disadvantages it affords them. The terms of the provision of education for the pupil with special needs is outlined, identification and referral procedures are explained. Certain general and special didactic principles are emphasised as they relate closely to the educational needs of the learning disabled. The curriculum and special provisions as well as paramedical and support services are discussed against a background of the special educational needs of the learning disabled adolescent.

CHAPTER FOUR

THE SCHOOL FOR SPECIALISED EDUCATION

4.1 INTRODUCTION

All pupils, and therefore pupils in specialised education as well, have the right, in spite of their particular handicap, to receive the type of education that assists them to achieve their maximum potential (South Africa s.a.:65). The correct placement of the learning disabled pupil is of cardinal importance if he is to receive the necessary specialist assistance.

The Report of the Committee of Inquiry into the Education of Children with Minimal Brain Dysfunction (South Africa 1969) made a number of recommendations which form the basis of specialised education as we know it today. The Report, known also as the Murray Report or the MBD report of 1969, in honour of its Chairman, Professor C.H.de C. Murray, traces the history of remedial education facilities in the Republic of South Africa back to the nineteen forties. A reference is made describing the pupils we recognise today as learning disabled as the "children who were educationally stranded" (South Africa 1969:31).

This report distinguishes between three groups of learning disabled children in South Africa as groups A, B and C. The division of learning disabled children into three groups formed the basis of educational provision for the learning disabled child in South Africa and was used by further committees faced with the responsibility of providing a framework for the education of these pupils. These pupils are classified as "handicapped" and thus, in terms of legislation, fall under any laws governing the handicapped (Derbyshire 1991:399).

4.2 PROVISION FOR SPECIALISED EDUCATION FOR THE CATEGORY C LEARNING DISABLED PUPIL IN SOUTH AFRICA

4.2.1 THE CATEGORY C LEARNING DISABLED PUPIL

According to the Murray Report of 1969, (South Africa 1969:25), this is the group of pupils that will never be able to benefit sufficiently from a specialised programme in a normal school and therefore will have to remain in a school where their needs are best accommodated for the rest of their school careers. The Report of the Work Committee: Education for Children with Special Needs (1981) (WCECSEN) specifically mentions the neurologically group C specific learning disabled child within a list of categories of handicapped children who cannot "inter alia owing to their aggravating conditions, sufficiently realise their potential which in comparison to the non-handicapped child might be a limited potential." (H.S.R.C. 1981:4).

4.2.2 LEGISLATION REGARDING THE CATEGORY C LEARNING DISABLED PUPIL

According to the Annual Report of the Department of National Education (South Africa 1980:2), the category C learning disabled pupils were included under the First Schedule of the Educational Services Act, no. 41 of 1967, and thus referred to schools under the control of this Department. The act describes a handicapped child (and this therefore includes the category C learning disabled child), as one who cannot derive sufficient benefit from instruction normally provided in the course of education, but requires education of a specialised nature in order to facilitate his education to the community (South Africa 1967, sec.1 (xiv)).

According to the Education Affairs Act (House of Assembly) 70 of 1988 (South Africa 1988, sec. 41), a child

shall not be admitted to a school for specialised education before the age of six or after the age of nineteen, and shall not remain at such a school after the age of twenty-one years, except with the approval of the Head of Education. The Head of Education has the authority to recommend that a child be committed to a school for specialised education if in his opinion this is necessary (South Africa 1988, sec. 45).

4.3 PROCEDURES REGARDING IDENTIFICATION, PLACEMENT, REFERRAL AND REPLACEMENT OF CATEGORY C LEARNING DISABLED PUPILS

4.3.1 INTRODUCTION

The Information Brochure on the identification of handicapped pupils (Interdepartmental Advisory Committee regarding Handicapped Pupils 1980:1) states that education is the right of every child who can derive benefit from it. The identification of a category C learning disabled pupil is in accordance with the definition of specific learning disabilities (see 1.3.3).

4.3.1.1 IDENTIFICATION

To qualify for exemption from mainstream education and be referred to specialised education, a category C learning disabled pupil's learning problem must be of a serious nature and not as a result of external factors. The pupil should have had remedial assistance in connection with his learning problem and still not made satisfactory progress. "Hard" or "soft" neurological signs may exist, as well as an abnormal E.E.G. Derbyshire (1991:400), in reviewing the work of Mercer (1983), states that as in the USA, with regard to placement, the policy in South Africa is to be flexible and adopt a tentative commitment to a programme level and not consider any placement in

any programme as permanent or terminal. The WCECSEN report (H.S.R.C. 1981:50) states that when it comes to early identification, the class teacher's judgement is regarded as the main criterion of scholastic impairment (H.S.R.C. 1981:47), although the report does concede that the publication of the Murray Report has heightened an awareness of psycho-neurological impairments of the category C child. While the scholastically impaired child in the junior primary phase receives a fair amount of attention with regard to help with specific impairments in reading, spelling, arithmetic and writing, these aspects are to a large extent ignored in the senior primary and secondary phases of school. An interesting phenomenon stated by the WCECSEN Report (H.S.R.C. 1980:130) is that the number of boys identified exceeds the number of girls.

4.3.1.2 REFERRAL AND PLACEMENT

Standardised means of identification and/or criteria are used by the various school psychological services for the identification of the group C pupils with specific learning disabilities, and when these pupils are referred to schools for special education, full particulars are furnished on a prescribed form. Accepting the bona fides of the school psychological services ensures that time-consuming re-testing is avoided. When pupils are transferred from a school for special education back to a provincial school, they must be given a certificate of discharge (Interdepartmental Advisory Committee Regarding Handicapped Pupils 1980:51). Parents are consulted when a pupil's placement and transfer are considered.

4.4 RENDERING OF ORTHODIDACTIC AID AT SCHOOLS FOR SPECIALISED EDUCATION

4.4.1 INTRODUCTION

According to Derbyshire (1991:400), remediation of the learning disabled pupil is a highly specialised subject area which demands specific knowledge and skills from practitioners. The rendering of aid to the learning disabled includes making success possible for the pupil who has a history of failure, and thus motivating him to try again. Using metacognitive strategies (see 2.6) or helping him in "learning how to learn" (Derbyshire 1991:413), will assist the pupil, particularly at the secondary level, in any subject. Teaching the learning disabled adolescent in the secondary section of the school for specialised education metacognitive strategies, especially those related to concentration, reading for information, memorisation, answering questions and solving problems, and writing assignments, will help to raise his awareness level of what works for him (see 1.2.4) and he will be put in a better position to intervene on his own behalf.

Added to this, Derbyshire (1991:409) believes that a background knowledge of rendering aid is crucial. Staff who are specially trained are needed to assist these pupils.

4.4.2 SPECIALLY TRAINED STAFF

Specialised education demands specialised expertise particularly in the field of methodology, didactics, orthodidactics, orthopedagogics and medical, psychological and social aspects of the neurologically handicapped child (South Africa s.a.:34).

Team-work is another essential aspect of specialised education: the multidisciplinary team consists of the class/subject teacher, remedial teacher, psychologist, therapists (speech, occupational and/or physiotherapist), principal or deputy, and the medical practitioner. The remedial teacher or orthdidactician would plan and monitor the strategy intervention programme. In-service training courses for staff assists the team with the essentials of strategy intervention and the reinforcement that needs to be provided in class.

The responsibility of the school for specialised education is, therefore, to provide a truly educational environment as well as an educator, who is able to intervene more purposefully to prevent or remedy inadequacies in the handicapped pupil's education (Kapp 1991:467). It therefore goes without saying that educators in specialised education for pupils with specific learning disabilities need to be highly aware of the didactic principles that are important to the education of the pupil with a severe learning problem, in this case the adolescents in the secondary section of the school for specialised education who have poor concentration, poor study habits, and poor metacognitive skills (self-regulation and self-monitoring).

Besides the three general didactic principles outlined below, there are a number of specific didactic principles that should be stressed regarding the education of these category C learning disabled pupils in a school for specialised education.

4.4.3 GENERAL DIDACTIC PRINCIPLES RELATED TO LEARNING IN A SCHOOL FOR SPECIALISED EDUCATION

4.4.3.1 INTRODUCTION

Botha (1991:282) refers to three traditional didactic principles that should be kept in mind when compiling an aid programme in general, or a lesson in particular, for a handicapped pupil. He states that presentation should take place as follows:

- i) from the familiar to the unfamiliar;
- ii) from the simple to the complex; and
- iii) from the concrete to the abstract.

The following are some of the didactic principles, particularly related to metacognitive strategies, which form the foundation of sound teaching procedures with regard to pupils in general and the handicapped in particular at schools for specialised education:

4.4.3.2 THE PRINCIPLE OF INDIVIDUALISATION.

According to Botha (1991:285), this principle cannot be over-emphasized in special education. An individual aid programme is drawn up by a multidisciplinary team. This programme is under revision as each pupil's progress (or lack of progress) is assessed on a continuum in a school for specialised education.

The learning disabled pupil needs help to discover which metacognitive strategies suit him best. Pupils refer to these strategies as ones that "work" for them (see 6.9.3). A smaller class in a school for special education (the allocation is one teacher for every 15 pupils) allows for more individualisation, and additional differentiation is possible when children are grouped according to their individual problems and scholastic levels.

The metacognitive strategy intervention programme stresses individualisation in order to reach proficiency criterion (see 2.5.2.2 and 5.5.5 (vi)).

4.4.3.3 THE PRINCIPLE OF PERCEPTION

According to Botha (1991:283), this principle resides in the fact that the child learns to understand his world through his senses. Through understanding and assimilating the concrete, reality is converted into abstract knowledge. Thus, the subject matter should always proceed from the concrete to the abstract. In the programme, the pupils' materials include cue cards that serve as concrete aids which help pupils to follow procedures and visualise the relationship between strategies.

4.4.3.4 THE PRINCIPLE OF MOTIVATION

The learning disabled child's self-concept and motivation towards learning is often very poor (see 3.4.8). Botha (1991:284) reminds us that an unmotivated child, whether handicapped or otherwise, cannot derive maximum benefit from the learning situation. The teacher must help the child through warmth, support, innovation, praise and encouragement to acquire a healthy, venturesome attitude.

4.4.3.5 THE PRINCIPLE OF ACTIVITY

This principle rests on the assumption that successful learning is largely determined by the child's active involvement in and active response to his learning environment. The learning disabled child may have difficulty organising his learning material in a purposeful way (see 3.2.2.7). The teacher must therefore plan meaningful activities so that the pupil is given maximum opportunities to become actively

involved in his learning in order to practise, as a strategy must be proceduralised to be effective (see 2.5.2.5).

4.4.3.6 THE PRINCIPLE OF TEMPO DIFFERENTIATION

According to Kapp (1991:349), this principle takes as its premise the fact that every pupil should be given the opportunity to actualise himself according to his own pace. The teachers' guide Department of National Education Handleiding vir Opvoeders aan Skole vir Neuraal Gestremde Leerlinge (South Africa s.a.:79), describes specialised education as a particular section where tempo differentiation plays an important role. Every pupil is given an equal opportunity, taking into consideration his ability, aptitude and interest, to develop to his maximum potential. The entire system of specialised education is based on the recognition of the differences that exist between individuals. In specialised education schools, the system is child-centred and adapts to the needs of each individual pupil.

4.4.3.7 THE PRINCIPLE OF PURPOSEFULNESS

Gerber (1986:30), in reviewing the work of Cawood et al. (1982), states that purposefulness, or striving towards a goal, is one of the fundamental insights in didactics. Striving toward a goal is operationalized by means of learning aims. An objective must be specific and should relate to the ultimate evaluation of the teaching. Harrison (1991:37) sees an awareness of goals as part of metacognition and motivation (see 2.3.1). The lessons in the metacognitive strategy intervention programme all have an explicit rationale so that the students can understand and accept the function of each strategy as of value to himself/herself personally (see 3.4.8 & 5.5.5 (vi)).

4.4.3.8 THE PRINCIPLE OF FOCUS

The focus is the point where everything the child has to learn, comes together, with the result that the child realises that he has something to gain from the learning act. According to Gerber (1986:34), meaningful learning is thus organised around a proper focus, which imparts a unity and form where the child can see the interrelationships or pattern and plan of what he is learning, and his learning becomes a process of exploration and discovery. As attentional deficits are often prevalent in a school for specialised education (see 3.2.2.3 and 3.2.2.4), it is important that the teacher is aware of the importance of proper focus. The metacognitive strategy intervention programme pays special attention to concentration (see 5.5.5 (i) and 6.9.1).

4.4.3.9 THE SEQUENCE PRINCIPLE

Gerber (1986:34) quotes Mursell (1954), who states that this principle pertains to intellectual growth or development. Anything that has to be understood can never be seen in isolation, but must be viewed in the context of past experience and learning. One of the features of the metacognitive strategy intervention programme is that the instruction is seen as an integrated whole and all the components fit into an overall scheme (see 5.5.5 (iii)).

4.4.3.10 THE PRINCIPLE OF MASTERY

In the final analysis, pupils have to attain mastery of their subject matter. Gerber (1986:36), in reviewing the work of Cawood et al. (1982), distinguishes between provisional and full mastery. The latter implies that the following consolidation measures have to take place:

- (i) Clinching measures implemented at the end of the day which may entail summaries of main points, diagrams etc.
 - Instant recall in the form of impromptu tests.
 - Instant revision the next day.
- (ii) Follow-up measures in the form of revision, either short-term or long-term. Revision as a technique has great significance for remediation.
- (iii) Consolidation measures which include practice (see 2.5.2.5), drill in various forms, meaningful application, study assignments (which may include homework), and study methods or strategies (see 1.3.2 and 2.6). The metacognitive strategy intervention programme emphasises a recursive cycle of corrective feedback until full comprehension is reached (see 5.5.2).

These didactic principles are interwoven into specialised teaching approaches. They need to be an integral part of the therapeutic programme in a school for specialised education. This is what makes a school for specialised education "different" and gives it specialised status.

4.4.4 SPECIALISED TEACHING APPROACHES

4.4.4.1 INTRODUCTION

Derbyshire (1991:400) lists three approaches to aiding the learning disabled, namely the behaviouristic approach, the cognitive approach and the ecological approach.

4.4.4.2 THE BEHAVIOURISTIC APPROACH

This approach is traced back to Thorndike and Skinner (Mercer 1983:182 - 185) and stems from the idea of the application of a stimulus, the obtaining of a response, and the repetition, which results in positive reinforcement, and thus brings about conditioning.

The teacher creates an optimal learning atmosphere for the child, who will only acquire skills when he is ready for them. Teaching aid programmes focus on improving skills such as attention, memory, perception, problem-solving and thinking, in order to be able to learn successfully.

4.4.4.3 THE COGNITIVE APPROACH

"The proponents of this approach, Ausubel, Bruner, Dewey and Gagne, shifted the emphasis in the learning process from the importance of the environment to the significance of the learner himself" (Derbyshire 1991:401). The approach stresses the active role of the learner himself in the learning situation, where the child learns through giving meaning to his world through his experiences. While the cognitive approach relies heavily on the improvement of perceptual and motor deficits in order to help the child to progress scholastically, the metacognitive approach, which is also based on the cognitive approach, stems from the assumption that the learning event can only be directed positively, if the pupil knows and can evaluate his own inherent strengths and weaknesses (see 1.3.1, 1.5.1.2, 2.2, 2.3.3, 2.5, 2.6 and 3.2). Derbyshire (1991:402) describes listening, concentration, memory and comprehension as important skills that influence the learning process. Strategy instruction belongs to the cognitive approach (see 1.3.2 and 2.6).

4.4.4.4 THE ECOLOGICAL APPROACH

This approach is based on the assumption that the pupil's behaviour and development are determined by the pupil himself in conjunction with his environment (Derbyshire 1991:402). The approach borrows ideas from both the behaviouristic and cognitive approaches. Teaching aid programmes based on this approach are the multisensory approach and the individualised educational programme (IEP).

Teachers within the schools for specialised education use all of the above-mentioned approaches in order to meet the needs of their pupils. The aid programmes are the result of a team effort on the part of all the different disciplines on the staff who are involved in helping the pupil. Multidisciplinary participants include the parents, who help the remedial teacher to collect all the relevant information needed to compile the IEP (Wallace & McLoughlin 1988:236).

4.5 THE CURRICULUM

As in the provincial schools, the schools for specialised education have a primary and a secondary phase. The primary phases involve basically class teaching where the pupils progress according to the best of their abilities and follow the syllabi of the province (South Africa s.a.:66). In the secondary section the candidates follow the syllabi leading to a National Senior Certificate. It is in the secondary section where the pupil is expected to take on more responsibility for his own progress that metacognitive strategy instruction can help the pupil become a more independent learner (see 1.2.3). In order to help the pupil, the educator needs to involve the parents who, are the main educators (Kapp 1991:455). According to

Hiemstra (1992:27), parents, who are not involved and who do not know what is taking place at school, can certainly not reinforce what the school is doing for their children.

4.6 PARENTAL INVOLVEMENT IN A SCHOOL FOR SPECIALISED EDUCATION

4.6.1 INTRODUCTION

The education of the special needs child is no longer the exclusive domain of the trained educator. According to Gargiulo (1985:6), parental involvement is no longer viewed as a privilege but as a right. Social change, in family settings from the extended family to the neolocal family, in knowledge, standards and values, communication and mobility (Shea and Bauer 1985:4), and recent federal legislation in the USA regarding equal rights and no discrimination for the handicapped, have had a significant impact on the parents' role in the education of their children (Shea & Bauer 1985:68).

4.6.2 EDUCATION AS A SHARED RESPONSIBILITY

Parents are now seen as partners, and share educational accountability. Shea and Bauer (1985:42), in reviewing the work of Clinton et al. (1978), state that one of parents' primary needs is to communicate as equals with empathetic and knowledgeable professionals. They are willing to become increasingly involved in the activities of the school, from fund-raising and executive functions of the management council to helping the professionals during the school day. They regularly attend meetings with professionals to discuss the progress of their children. Professionals assist parents to support their children at home by compiling home

programmes related to homework routine or therapies. Professionals try to help parents who have a particular problem at home (see 5.5.7).

4.6.3 PARENTS AND METACOGNITIVE STRATEGY INSTRUCTION

It is essential that the parents are up to date with any specific methods or any changes that are introduced into their child's programme. To be in a position to reinforce at home what the teachers have taught at school, the parents need to be well informed and to be convinced that the intervention has merit. Parents are always willing to assist, if they believe that they can be instrumental in helping their child to progress. For this reason parents must be informed of the goals of the metacognitive intervention programme so that they can offer the necessary assistance at home.

4.6.4 PARENTS' NEEDS

Gargiulo (1985:14) states that parents of handicapped children encounter situations and conditions that parents of non-handicapped children may never experience, but their role is the same as that of any other parent. These parents need support and guidance in assisting their children, as well as help to sort out their own emotional reactions. Once the dream of the perfect child has been dissipated, some parents may be left with feelings of guilt or recrimination. They may feel that society demands conformity, and when their child fails to meet society's expectations, a sense of urgency for achievement seems to prevail. An explanation for their child's failure is demanded so that society may grant them a reprieve. They then look for counselling and training and specific information about their role in meeting their child's needs. Professionals can assist the parents not only in understanding their feelings, but in better understanding

their child and helping shape his/her future (Gargiulo 1985:19). The whole family related to the handicapped child has special needs which are seldom recognised or satisfied, and each family needs to be handled individually. The stigma attached to a special school, which stems from the negative reaction of others, spreads from the child concerned to his whole family. In an attempt to "normalise" their lives, these parents become involved in activities to help their child, as society perceives this type of behaviour as "good". Shea and Bauer (1985:42) believe that parents need support from professionals regarding:

- (i) the effect of their attitudes and feelings towards exceptionality on their child's self-acceptance and acceptance by others;
- (ii) the availability and quality of specialist treatments and habilitation services;
- (iii) the availability of specialised education services and training programmes;
- (iv) the prospects for their child's future.

Besides information, understanding and support, they need to participate actively in planning the future for their child and understanding their role in furthering their child's development. They also have a need to maintain their identity as competent individuals, parents and members of a community. They need to understand what their role is in the development of positive and realistic expectations for their child. The school and the home have the children in common and their common goal should be to help the children grow.

4.7 ADVANTAGES AND DISADVANTAGES OF SPECIALISED EDUCATION

4.7.1 INTRODUCTION

While the school for specialised education for the category C learning disabled pupil has as its mission

to assist the pupil with a learning disability to achieve his maximum potential, he must also be educated towards a better understanding and acceptance of himself as a person with limitations and not deviations (Kapp 1991:468). The school has to accept the fact that there are advantages and disadvantages to specialised education. The child is a social being and it is mainly in the area of social contact that opportunities are lost. The school therefore needs to be aware of this and provide as many opportunities for the pupils to come into contact with society (Kapp 1991:469).

4.7.2 THE ADVANTAGES

According to the WCECSEN Report (H.S.R.C. 1981:162), the advantages of accommodating handicapped children in schools for specialised education are as follows:

- (i) specially equipped schools will have specially equipped classrooms and special adapted aids available;
- (ii) specially trained teaching personnel will be available;
- (iii) there will be specially trained auxiliary personnel available (speech therapists, occupational therapists, physiotherapists, psychologists, remedial staff and medical staff) to help individual pupils with their specific problems;
- (iv) pupils will receive more individual attention in smaller class groups;
- (v) the pupil will feel more secure in an environment where he feels that the personnel understand his problem;
- (vi) the opportunities for academic and social achievement are greater, as the pupil has a better chance to receive recognition from his peers.

The category C learning disabled pupil benefits from the small classes and the specially trained staff, as he receives more individualised attention for his specific learning disability from staff who understand his problem and how to help him deal with it.

4.7.3 THE DISADVANTAGES

According to the WCECSEN Report (H.S.R.C. 1981:165) the disadvantages of accommodating a pupil outside the mainstream are as follows:

- (i) specialised education is an expensive undertaking (special aids, more staff provision, transport of pupils to school);
- (ii) the removal of the child from the normal residential school situation may result in emotional-social upheaval and subsequent mal-adjustment;
- (iii) the child may lose touch with the normal school community and become accustomed to the artificial world of handicapped children;
- (iv) the staff at a school for specialised education may develop a distorted image of the standards set in the academic and social context for a non-handicapped child in a normal school. Standards may be lowered and the pupil will receive an inferior education;
- (v) the handicapped child has little opportunity for social interaction with non-handicapped peers and does not get the opportunity to steel himself to meet the demands of the normal working world.

In spite of the disadvantages mentioned, the category C learning disabled pupil still benefits from specialised education in that this environment offers him unique opportunities to overcome his learning problems and achieve his mandate in life.

4.8 SYNTHESIS

The school for specialised education is a unique institution that attempts to provide for the very specialised needs of its specific target group of handicapped pupils, in this case the category C learning disabled pupil. Specialised education, as a differentiated form of education catering to the individual's needs has developed a particular character. The possibility of an adolescent, who is experiencing a learning problem, being assisted through metacognitive strategy intervention to a point where he becomes a more independent learner who can successfully be re-integrated into the mainstream at a future date, is a priority with most parents. In spite of the disadvantages, especially the social disadvantages, the advantage of the opportunity to learn is still there for the learning disabled pupil who can be motivated to make the effort and take responsibility for his progress.

Thus, the school for specialised education is in an advantageous position to aid the learning disabled adolescent by making use of the specially trained staff, applying the various didactic principles related to metacognitive instruction by means of incorporating the various teaching approaches.

This may only be successfully achieved by means of active parent involvement, taking into account the various advantages and disadvantages of a learning disabled child attending a school for specialised education.

4.9 PROJECTION FOR NEXT CHAPTER

Chapter Five deals with the Research Design wherein the design hypotheses are stated and the experimental conditions explained.

The experimental research (nomothetic) method is used to discover whether the hypotheses can be proved. The research instruments used are explained in the light of their value to the research, and the implementation of the intervention programme is described.

CHAPTER FIVE

EMPIRICAL INVESTIGATION: RESEARCH DESIGN AND DISCUSSION OF RESULTS

5.1 INTRODUCTION

The previous four chapters have served to demonstrate :

* that in spite of an average or above-average I.Q., the learning disabled adolescent in a school for specialised education, where the classes are smaller than the mainstream, has problems coping with concentration, reading, memorisation, answering questions and solving problems and writing assignments. *There is therefore a need for the learning disabled adolescent to develop a set of metacognitive learning strategies covering these inadequate skills so as to improve the pupils' executive control and self-regulation in their approach towards academic tasks.* (See 2.2.2 and 2.2.4.)

As these pupils reach the secondary section of the school, they are expected to be able to process an increasingly demanding amount of information independently. Often teachers and parents take it for granted that a pupil with a good potential will cope with the load of work if he is provided with the time and tools.

This study investigates the type of assistance needed by the learning disabled adolescent in a school for specialised education in order to cope with these demands. The study will be conducted by means of the implementation of certain standardised assessment procedures, a pre-test and post-test consisting of a reading exercise and comprehension questions to assess:

- (i) concentration;
- (ii) reading for information;
- (iii) memorisation;

- (iv) answering questions and solving problems; and
- (v) writing assignments (paragraphs).

5.2 AIMS OF THE STUDY

5.2.1 GENERAL AIM OF THE STUDY

The study has been undertaken primarily to develop an intervention programme based on metacognitive learning strategies that will assist the learning disabled adolescent in the secondary section of a school for specialised education in becoming a more independent and successful learner.

5.2.2 SPECIFIC AIMS OF THE STUDY

- (i) To teach pupils a general metacognitive learning strategy relating to concentration, a skill which is superimposed over all their learning.
- (ii) To teach pupils specific metacognitive learning strategies with special reference to the following areas:
 - * reading for information from text
 - * memorisation
 - * answering questions and solving problems
 - * writing assignments (paragraphs)

5.3 EXPERIMENTAL GROUP

The empirical investigation took the form of a nomothetic study involving two groups of Std.8 pupils, with twelve pupils in each group, who were all classified as having a specific learning disability and enrolled at a school for specialised education. There were twelve pupils in each group matched according to age, sex, I.Q. and motivational aspects pertaining to how these pupils approach their activities as revealed by the H.S.R.C. Picture Motivation Test.

5.4 RESEARCH INSTRUMENTS

5.4.1 H.S.R.C.Picture Motivation Test

Tests within this battery, namely Cognitive Structure, Scholastic Achievement, Order, Impulsivity and Change, were used to measure motivational aspects considered important to the learning situation and the inner forces which drive the individual pupils to behave in a particular way. The scores that the pupils obtained in these tests were added together and pupils were then matched in accordance with another pupil who had a similar score.

5.4.2 Pre-test A (See Appendix A : (i)-(ii))

This test was compiled by the writer from the first half of a passage in "English in context" Book 3 by J.O. Hendry, H.M. Gardyne and S.A. Burger, entitled "India's prophet of peace" (1993:34,35). The test was constructed as a passage of reading followed by a set of multiple-choice questions based on the text, certain facts in bold-type to be memorised and a paragraph to be written on a given topic. The test was designed to measure the following skills: concentration, reading for information, memorisation, answering questions and solving problems, and writing a paragraph. The pupils were given five minutes to read the passage and ten minutes to answer the questions and write the paragraph.

5.4.3 Post-test B (See Appendix A : (iii)-(iv))

The post-test was compiled from the second half of the passage mentioned above from the book "English in context" Book 3 by J.O. Hendry, H.M. Gardyne and S.A. Burger entitled "India's prophet of peace" (1993: 34, 35). The post-test was designed to match the pre-test in terms of the difficulty level of the questions and the time constraints.

5.4.4 The Wilcoxon t-test for matched data

This t-test for matched data was used to determine whether there was a significant difference between the two sets of scores following the results of the pre-test and the post-test, and a two-tailed test was applied (see 6.8.1 and 6.8.2).

5.5 THE INTERVENTION PROGRAMME

The intervention programme is based on a programme called Teaching general and specific study strategies to learning disabled adolescents: lessons ready for validation by Michael O'Loughlin, Katherine Reitzes and Margaret Jo Shepherd, published by the Research Institute for the study of Learning Disabilities, Teachers' College, Columbia University, 1983.

The programme is aimed at junior secondary pupils with learning disabilities who have difficulties owing to poor study habits, and was designed to be used with content subject material. In this study, English was the subject common to all the pupils and therefore English syllabus material was used. Pupils were also asked to comment on how specific strategies could be applied to their chosen subjects.

5.5.1. GENERAL AIMS OF THE INTERVENTION PROGRAMME

The general aims of the programme are to help the pupil improve in the following aspects:

- to focus on the task at hand;
- to organise his home/study environment;
- to allocate and plan study time;
- to identify goals related to assignments;
- to complete tasks correctly with minimum assistance;
- to improve scholastic performance and self-concept.

5.5.2 SPECIFIC AIMS OF THE INTERVENTION PROGRAMME

- to encourage more reflective thought through internal dialogue (verbal mediation);
- to teach the significance of planning, predicting, monitoring, evaluation and feedback;
- to assist pupils to clarify a purpose for each assignment;
- to assist pupils to engage in a recursive cycle of corrective feedback until full comprehension is reached;
- to assist pupils to consciously create elaboration connections between the new material and their existing knowledge base;
- to assist pupils to generalise or transfer newly learned skills to novel but appropriate tasks, thereby enhancing learning.

5.5.3 GENERAL STRATEGIES COVERED

Concentration is a general strategy, superimposed over all specific strategies. The general study map refers to the following skills pertinent to all strategies:

- (i) Beginning a study session
- (ii) Checking concentration.
- (iii) Finishing a study session.
- (iv) Reviewing a study session.

5.5.4 SPECIFIC STRATEGIES COVERED

- (i) Reading for information
- (ii) Memorisation
- (iii) Answering questions and solving problems
- (iv) Writing paragraphs.

5.5.5 NOTABLE FEATURES OF THE INSTRUCTION

- (i) The lessons are constructed on the basis of direct instruction (see 2.5.2.3) in accordance with the principle of focus (see 4.4.3.8).

- (ii) The lessons always have an explicit rationale so that the pupils understand and accept the function of each strategy as of value to them personally in order to aid motivation in accordance with the principle of motivation (see 2.5.2.1, 3.4.8 and 4.4.3.4).
- (iii) The informed training is seen as an integrated whole - the components fit into an overall scheme or an integrated framework in order to aid assimilation in accordance with the sequence principle (see 4.4.3.9). The components consist of step-by-step instruction procedures with built-in self-correction to assist the executive training process (see 2.6.1), and frequent self-testing and self-questioning requirements to encourage constant reflection (see 3.6.4) in the impulsive pupil.
- (iv) The strategies relate to aspects of the syllabus and are therefore seen as of immediate value in accordance with the principle of purposefulness (see 4.4.3.7).
- (v) The lessons all follow the same pattern: aim, overview, rationale, instruction, examples, review and practice session, in accordance with the principle of perception (see 4.4.3.3).
- (vi) The lessons include a practice period wherein each individual pupil has the opportunity to practise the strategy to proficiency level (see 2.5.2.5), aided by the teacher when necessary, in accordance with the principles of individualisation (see 4.4.3.2), tempo differentiation (see 4.4.3.6), activity (see 4.4.3.5) and mastery (see 4.4.3.10).

5.5.6 THE MATERIALS

Pupils' material consists of cue cards that serve as concrete aids which help them to follow the procedures and visualise the relationship between strategies (see the principle of perception 4.4.3.3). Examples of these cards are in Appendix B.

Card 1: The general study map. (See Appendix B, no. 1)
This card contains the beginning and ending steps of each lesson: these are general organisational and self-monitoring steps involved in any task. The other cards containing the strategies and their steps all fit into this general study map, forming an integrated whole in accordance with the sequence principle (4.4.3.9).

Card 2: Checking concentration card
(See Appendix B, no. 2)

This card fits into the general study card and asks the question whether the pupil is concentrating. If the pupil feels the material does not make sense, he is advised to go back to the beginning.

Card 3: Reading for information card
(See Appendix B, no. 3)

This card has four steps of instruction regarding the reading strategy and it fits into the general study card.

Card 4: Memorisation (See Appendix B, no. 4)

This card contains five steps suggesting a strategy for memorisation and fits into the general study card.

Card 5: Answering questions and Solving problems.
(See Appendix B, no. 5)

This card contains five steps regarding a strategy to answer a set of questions in an organised way, and it fits into the general study card.

Card 6: Writing assignments (See Appendix B, no. 6)

This card contains a set of five steps suggesting a strategy for writing a paragraph in a planned and organised way, and it fits into the general study card.

5.5.7 THE PROCEDURE

After the two groups of pupils were selected by matching them in terms of age, sex, I.Q. and performance on the H.S.R.C. Picture Motivation Test, both groups were administered the pre-test A at the same time. The Wilcoxon t-test for matched data was used to ascertain whether there was any significant difference in the scores (see 6.8.1 and 6.8.2).

A coin was tossed to determine which group would constitute the experimental group and which the control group. The experimental group (group A) were given the strategy instruction in the intervention programme for two sessions a week over a period of four weeks. The control group (group B) were allowed to study on their own without any intervention for the same period of time.

The parents of the pupils in the experimental group were contacted by telephone and the procedure was explained to them. All the parents were very positive and eager to help their children wherever they could (see 4.6.3 and 4.6.4). They were requested to enquire of the pupils how they were experiencing the programme and to encourage the pupils to explain the strategies to them as well as discuss the merits of the strategies. It was hoped that with parent involvement and support at home, the purpose and value of the strategy instruction would be enhanced and the opportunity for the transfer of the strategies across settings would be increased (see 2.6.5).

At the end of the four-week period both groups were tested together on the post-test B which assessed the same criteria as the pre-test A. The Wilcoxon t-test for matched data was then applied to the results of test B to see if there was a significant difference (see 6.2.2).

5.5.8 THE METACOGNITIVE STRATEGY INSTRUCTION

A detailed example of the metacognitive strategy instruction programme is outlined to explain how the programme was conducted. Unit 1 pertains to the general study strategies and units 2 to 5 to the specific study strategies.

5.5.8.1 Unit 1: Beginning a study session, concentrating and ending a study session.

Materials needed:

Subject material to work on in the example; teacher transparencies of study map and concentration card, and overhead projector; pupil copies of study map and concentration card; pupils' strategy workbooks.

Aim of lesson:

To teach a strategic way of starting a homework or study session so that it is better organised and, therefore, more likely to help to improve results, concentrating on a specific task, and ending off a study session.

Overview:

This study plan is set out in special steps that follow a logical order. After learning the steps, pupils will be given the opportunity to practise the plan, using the subject notes they have for homework.

Rationale:

If a pupil has an efficient study plan, it will help him to be better organised, to save time and improve marks.

Instruction: (Part 1: beginning a study session)

There are four steps that must always be followed when starting a homework/study session:

1. Ask yourself: "What do I need to do for homework?" Check your homework diary.
2. Get out everything you need for doing your homework/study.
3. Settle yourself at your study station where it is quiet.
4. Decide what it is the teacher expects you to do. What do you need to learn? What kind of questions will you be asked? Thinking in this way will prepare you for what you have to do.

The teacher displays the transparency and reviews the steps: teacher models, pupils verbalise, teacher fades for training executive strategy procedures (see 2.6.2). (Teacher will pause and clarify if necessary).

Example:

Using the content subject material selected for that day, the teacher asks: "What does the teacher expect you to do?"

The pupils are led through the 4 initial steps on the study map, using the content subject material as an example.

Instruction: (Part 2: Concentration)

Pupils are told that concentration applies to any learning or study. If they do not concentrate they will not remember and their time will be wasted. To concentrate means that one does not think of anything else except the important item one is busy with at any particular time. While pupils are working, they need to be concentrating in order to make sense of what they are doing at all times. If they find that something distracts them, they may need to remove this distraction before carrying on (eg., if there is a noise, close the door or turn down the radio).

Review:

Pupils are shown the study map again on the overhead projector and the concentration card is superimposed over the study map. The teacher goes through the steps on the concentration card and the teacher models, pupils verbalise and teacher fades (see 2.6.2).

Pupils are reminded to test their concentration by asking themselves periodically if the material they are working with makes sense. If it does not, they are advised to go back to the beginning and start again.

Instruction: (Part 3: Ending a homework/study session)

Pupils must learn how to end off a session, making sure that their work is correct to the best of their ability. Everyone is likely to forget something or make a careless mistake at some stage, so it is vital to check one's work as far as possible.

There are three steps to finishing off work (teacher outlines the steps on the overhead and transparency):

1. Pupils must ask themselves: "Have I done what the teacher expected?" They must check all the work, paying special attention to spelling, punctuation and neatness.

To reach the STAR on the study map, pupils must go through all the steps thoroughly. If the work is not complete, pupils will need to go back.

2. Pupils must ask themselves: "Do I know what I need to know?". If not, they must go back.
3. When pupils have done what the teacher expected, completed the work, and understood the material, they will have done a good job and they will have reached the STAR. This will help them to do better in their homework and tests, and their scores will go up.

The teacher then emphasises how the concentration card fits into the overall study map (see 4.4.3.9 and 5.5.5 (iii)). It is to be seen as an integrated whole with how to begin a study session, how to concentrate on any assignment and how to end off an assignment successfully.

The beginning and ending session steps must be emphasised.

Practice:

1. Refer to the study map and the concentration card in the pupils' possession. Pupils stick them into their workbooks.

2. Using the content subject material, the pupils re-trace the steps on their cards while they execute their homework/study assignment. The teacher elicits pupils' response by asking: "What must we do next?"
3. Pupils practise individually to the proficiency criterion under supervision (see 2.5.2.5 and 4.4.3.10). The teacher moves around to monitor and assist wherever necessary.

5.5.8.2 Unit 2: Reading and studying for information

Materials needed:

Content subject notes; pupils' reading for information card and study map, and strategy workbooks; teacher transparencies; paper "flag" for reading each paragraph.

Aim of lesson:

Pupils will be shown an efficient strategy for reading and studying text in order to gain information.

Overview:

In this lesson pupils will be shown how to read from their notes or textbooks in a way that promotes better understanding of what has been read. Pupils will check their understanding as they go along and change their approach if they do not understand.

Rationale:

If a pupil learns how to monitor his own understanding as he reads, he will improve his scores. This recipe works, because it allows the pupil to check whether he understands as he proceeds, and tells him what to do if he experiences difficulty.

Instruction:

1. Before beginning to read, pupils are instructed to put a "flag" or marker at the end of the paragraph.
2. The pupils are to begin reading carefully until they reach the "flag". At the "flag" they must ask themselves: "Do I really understand what I have read? Could I explain it to someone else?"
3. If the answers are "Yes" in each case, the "flag" is placed at the end of the next paragraph and the steps are repeated.
4. If the answers are "No", pupils are advised to go back to the beginning of the paragraph and read it over again carefully until full understanding of what has been read is reached.
5. If pupils are still in doubt, they may be advised to get help from someone else.

Example:

The teacher goes through the steps with the class, as each pupil follows in his own copy of the same content material.

Review:

The teacher takes the pupils over the steps needed for reading a paragraph. The teacher models, the pupils verbalise and the teacher fades (see 2.6.2).

Practice:

The pupils insert their reading for information card and study map into their workbook. In conjunction with these cards and their "flags", they read their

text, paragraph by paragraph, being sure to understand what they have read. The teacher monitors and assists the pupils as they practise to proficiency criterion (see 2.5.2.5 and 4.4.3.10).

The reading for information card must be seen to fit into the overall pattern of the general study map, and the beginning and ending sessions must be emphasised.

5.5.8.3 Unit 3: Memorisation

Materials needed:

Content subject material; 2 sample lists of facts from the content subject material prepared by the teacher as an example; memorisation card, study map and strategy workbook for pupils; teacher transparencies of study map and memorisation card.

Aim of lesson:

To teach a rehearsal strategy as a technique for efficient memorisation in conjunction with the steps in the memorisation card and the study map.

Overview:

Pupils learn to divide the work to be learnt into smaller units, to master these facts, and then piece the whole together again, in order to master the whole.

Rationale:

To be successful in tests/exams, pupils are told they have to rely on their memories. Rehearsal will help improve their scores, because it will help them to remember better. Rehearsal also means practice, so to improve, they will need to practise over and over.

Instruction:

The steps for learning how to rehearse:

1. Make a list of all the facts to learn (use pre-arranged list as example).
2. Divide the list into 2 smaller lists.
3. Rehearse or practise one of the two small lists by reading the facts over and over until they have been learnt so well that they can be repeated while the list is covered.
4. Pupils test themselves to see if they know the list.
5. When the first list is mastered, the same is done with the second list.
6. Pupils test themselves again.
7. Both lists are put together again and practised as a whole list.
8. Pupils test themselves until they know the whole list. If any facts are missed, they must go back and learn them again.
9. Pupils are urged to rehearse these facts in this way regularly each day before they write a test/exam.

Example:

Elicit an individual list of about ten facts based on the homework/study of each pupil.

Review:

The teacher takes the pupils through the steps required to rehearse a list of facts. The teacher models, the pupils verbalise and the teacher fades

according to the self-instructional procedures of Meichenbaum (1982:133) (see 2.6.2).

Practice:

1. Refer to the study map and memorisation card in the pupils' possession. These must be inserted (pasted into) in the pupils' strategy workbooks. The memorisation card fits into the overall study map. The beginning and ending session steps must be emphasised.
2. Pupils practise their individual lists in conjunction with the steps in the memorisation card to proficiency criterion (see 2.5.2.5 and 4.4.3.10).
The teacher moves around to monitor and assist wherever necessary.

5.5.8.4 Unit 4: Answering questions and solving problems

Materials needed:

Content subject notes containing questions to be answered; questions and problems card, study map copy and pupils' strategy workbooks; teacher's transparency of answering questions and solving problems card, study map and example of content subject questions based on the content subject matter used in unit 3 for memorisation.

Aim of lesson:

To help pupils to develop a strategy to answer written questions and solve problems.

Rationale:

If a pupil learns a strategic way of answering his written questions and solving problems he will get better marks.

Instruction:

The teacher uses the transparencies of the answering questions and solving problems card on the overhead projector to explain the strategy, and demonstrates how this strategy fits into the overall scheme of the study map, according to the sequence principle (see 4.4.3.9).

The following are the steps in the instruction:

1. Read the instructions carefully and then read over the whole paper.
2. Tick off and do the easy questions first, numbering them correctly.
3. Go back over the ones that are left, read them over carefully, underlining the important words, noting down any clues, and do the ones that are known, again in any order, but carefully numbered.
4. Repeat step 3 until all the options have been exhausted.

Example:

The teacher shows the pupils the example of the content subject questions on the overhead projector. The teacher demonstrates how to read it over completely, and then tick off the easy answers. When these have been answered, the pupils are shown how to return to the other questions to read them again carefully, noting down any clues, highlighting/underlining any relevant words that will help with answering the question. The process is repeated until all the questions have been answered, or the pupil cannot answer any more. Pupils are reminded to number the questions correctly.

Review:

The teacher takes the pupils through the steps needed for answering questions and solving problems. The teacher models, the pupils verbalise and the teacher fades (see 2.6.2).

Practice:

The pupils insert their answering questions and solving problems card and study map into their strategy workbook. In conjunction with the steps outlined on these cards, they answer the question paper based on the content subject matter memorised in unit 3.

The teacher monitors and assists the pupils as they practise to proficiency criterion (see 2.5.2.5 and 4.4.3.10).

5.5.8.5 Unit 5: Writing assignments:

Materials needed:

Content subject paragraph topic; writing assignment card and study map; pupils' strategy workbooks; teacher's transparencies.

Aim of lesson:

To teach the pupils a strategy to use when planning and writing a paragraph for an essay/composition-type assignment.

Overview:

The pupils will be shown how to stay with the topic, create meaningful sentences and check their work before handing it in.

Rationale:

The pupils must learn to write meaningful sentences that concur with the topic. Checking of work before handing it in improves the chances of getting better marks.

Instruction:

These are the steps to writing a good paragraph:

1. Write down the title or heading.
2. Read over the title and ask: "What am I expected to say in this paragraph?" Jot down some key words if necessary.
3. Write a paragraph about the topic. Stop, read it over and ask: "Is this really about the topic?" If the answer is "Yes", continue; if the answer is "No", make the necessary changes.
4. Continue to the end of the assignment.

Example:

The teacher can write a title on the blackboard and invite the pupils to elaborate. Write down key words. Check the relevancy of the key words and make any necessary changes. Have the pupils construct a paragraph of five sentences, using key words. Check the content, spelling and punctuation by reading over aloud.

Review:

Give pupils another topic on the board. Go over rationale and revise steps. Construct more sentences through elaboration and keywords. Teacher models, pupils verbalise and teacher fades according to the self-instructional training procedures (see 2.6.2) developed by Meichenbaum (1982:133).

Practice:

The pupils insert their writing assignment cards and their study maps into their strategy workbooks.

They are given a topic on which to write a paragraph, using the steps as outlined on their strategy cards. The teacher monitors and assists the pupils as they practise to proficiency criterion (see 2.5.2.5 and 4.4.3.10).

5.6 SYNTHESIS

This chapter has as its focus the design of an intervention programme to assist the learning disabled adolescent in a school for specialised education to cope with the demands of the secondary school syllabus in a more effective and independent way. Strategies that lead the pupils through a sequence of steps from analysing the problem to solving it successfully will help them to develop better executive processing and self-regulation.

Expert guidance in the form of reciprocal teaching (see 2.6.4), experience of transenvironmental teaching (see 2.6.5) and the promotion of generalisation across settings, will facilitate more active participation on the part of the pupil. Self-testing and self-questioning techniques (see 5.5.5.(iii)) promote attributional re-training (see 2.6.3) and help the impulsive pupil to be more reflective in his approach to his work, ultimately improving his scores and, thereby, his self-concept. Thus, the aims of this study should be accomplished.

The general aims of the study, the experimental conditions and design of a metacognitive intervention programme to assist the pupil to become a more independent learner, were discussed. The results of the planning, implementation and data generated from the assessment instruments were interpreted statistically in order to establish whether there was any significant difference in the pre-test and post-test scores.

5.7 PROJECTION FOR NEXT CHAPTER

Chapter six discusses the study and the findings of the empirical investigation with appropriate recommendations emanating from the study.

CHAPTER SIX

RESUME OF STUDY, FINDINGS, RECOMMENDATIONS AND CONCLUSION

6.1 INTRODUCTION

The research in this dissertation has been concerned with helping learning disabled adolescents acquire metacognitive strategies that would assist them to become more independent in their studies. The empirical investigation was undertaken to see whether pupils could be taught to use metacognitive learning strategies related to the skills they frequently use when doing their homework or studying, namely, concentration, reading for information, memorisation, answering questions and solving problems, and writing paragraphs or assignments. Many learning disabled adolescents in a school for specialised education have been described as immature learners who are unaware of task demands and who rarely introduce strategies to aid their learning. In spite of a good potential these pupils fail to achieve and eventually exhibit a severe form of passivity or learned helplessness (see 1.4 and 3.4.7). Adopting these metacognitive strategies helped the pupils to develop more effective routines to cope with the demands of their secondary school syllabus. Becoming more efficient learners improved their scores and thereby their self-concept.

6.2 EXPLICATION OF THE TERMINOLOGY

6.2.1 METACOGNITION (see 1.3.1)

In this study metacognition refers to conscious and deliberate attention to the demands of a given task in the light of existing knowledge, as well as to the functions of executive control regarding the efficient performance of the task.

6.2.2 COGNITIVE STRATEGIES (see 1.3.2.1)

When mention is made of a cognitive strategy in this study, it refers to a deliberate mental act employed in order to help solve a problem.

6.2.3 METACOGNITIVE STRATEGIES (see 1.3.2.2)

With reference to metacognitive strategies in this study, what is implied is a conscious, deliberate mental act employed to help solve a problem, where two important aspects are stressed: firstly, there must be an existing knowledge or awareness of the strategies and resources available to meet the demands of the task, and secondly, control measures must be employed to see that the task is completed successfully.

6.2.4 SPECIFIC LEARNING DISABILITIES (see 1.3.3)

The term "learning disability" in this dissertation is in accordance with the view of the Department of National Education. The learning disabilities discussed refer to specific learning disabilities with a possible neurological basis, manifested in the processes of listening, thinking, speaking, reading, writing, spelling or mathematics, where the learning disability is not primarily caused by sensory, emotional or motor defects, and where there is a marked discrepancy between the actual and estimated potential.

6.2.5 ADOLESCENT (see 1.3.4)

In this study adolescent means a person between the ages of 12 and 22 who is maturing towards adulthood.

6.2.6 SPECIALISED EDUCATION (SPECIAL EDUCATION) (see 1.3.5)

In this study special education implies specialised education of a therapeutic nature for pupils with specific learning disabilities where pupils are guided and supported with remedial programmes to aid their

learning and assist them to overcome or compensate for their deficits.

6.3 BACKGROUND TO PROBLEMS UNDER INVESTIGATION

6.3.1 EXPOSITION OF THE PROBLEM

6.3.1.1 NON-STRATEGIC BEHAVIOUR OF IMMATURE LEARNERS (see 1.5.1.1)

Chan (1991:4) (see 1.5.1.1) believes that many pupils at school experience difficulties due to non-strategic behaviour, and the fact that they have inappropriate causal attributions for success and failure. Ellis et al. (1989:108) in reviewing the work of Hallahan and Kneedler (1979), describe impulsive behaviour in learning disabled pupils where pupils do not stop to consider the requirements of a task or the best way to address a task before responding (see 1.5.1.1). Wong (1991:11) (see 1.5.1.1), suggests that what the learning disabled pupil's strategic deficits indicates is a lack of awareness of task demands, and a lack of awareness of which strategy to use to match the demands of the task. Her contention is that these strategic deficits point to a lack of metacognitive skills.

6.3.1.2 A METACOGNITIVE APPROACH TO TASK DEMANDS (see 1.5.1.2)

Metacognition requires a consideration of task demands and existing knowledge before responding. Training in executive processes of planning, predicting, monitoring and checking should assist pupils to identify a problem, use an appropriate strategy, monitor the strategy's effectiveness and make any adaptations if necessary (Ellis et al. 1989:108) (see 1.5.1.2).

6.3.1.3 THE NEED FOR A MORE INDEPENDENT LEARNING STYLE
(see 1.5.1.3)

The demands of the secondary section of the school necessitate that the pupils develop ways of coping with subjects that are more textually based. According to Brown et al. (1983:90), pupils in the secondary school will therefore have to develop strategies that are organised and principled (see 1.5.1.3).

6.3.1.4 TASK-SPECIFIC STRATEGY INTERVENTION (see 1.5.1.4)

It is recommended by Ellis et al. (1989:109) (see 1.5.1.4) that an intervention programme based on a combination of a task-specific strategy approach and training in executive processes be given to learning disabled pupils. This would enable them to practise skills while being exposed to a wide variety of task-specific strategies. They could thus have an input into the design of the strategies, and therefore their role as control agents would be enhanced. This could also allow them the opportunity to transfer these strategies to other settings, e.g., in their classrooms.

6.4 THE PROBLEM

The purpose of this study as explained in Chapter One, was to outline the problems facing the learning disabled adolescent who has to cope with the demands of the secondary school syllabus in a school for specialised education.

6.4.1 THE PURPOSE OF THE INVESTIGATION

The purpose of the investigation was to develop a set of metacognitive learning strategies which could assist the learning disabled adolescents in the secondary section of a school for specialised education meet the

increased demands of the secondary syllabus while becoming more independent as learners. They could also be assisted to improve their scores, and therefore ultimately their self-concept.

6.4.2 THE PROCEDURE

A study was made of the relevant literature in order to provide a frame of reference which would enable the researcher to recontextualise the problem in a meaningful way. The empirical research involved a nomothetic study in which two groups of twelve learning disabled adolescents were matched according to age, sex, I.Q. and motivational aspects pertaining to how these pupils approach their learning tasks.

6.4.3 STATEMENT OF THE PROBLEM

The problem concerning the learning disabled adolescents in a school for specialised education is therefore the need to develop a set of metacognitive learning strategies so as to improve the pupils' approach towards their academic tasks.

6.5 AIM OF THE STUDY

6.5.1 GENERAL AIM

The general aim of the study was to develop a set of intervention strategies based on metacognitive principles which could assist the learning disabled adolescents in the secondary section of a school for specialised education to become more independent learners, particularly in the areas of concentration, reading for information, memorisation, answering questions and solving problems, and writing paragraphs or assignments.

6.5.2 SPECIFIC AIMS

- (1) To teach pupils a general metacognitive learning strategy related to concentration, a skill which is superimposed over all their learning.

(ii) To teach the pupils specific metacognitive learning strategies with special reference to the following areas:

- * reading for information from text
- * memorisation
- * answering questions and solving problems
- * writing assignments (paragraphs)

6.6 RESEARCH METHOD

The research approach was twofold, namely a literature study supplemented by a limited empirical investigation. The results of the investigation are outlined below (see 6.8.1 and 6.8.2). The Wilcoxon t-test for matched data was used to determine whether there was a significant difference between the two sets of scores following the results of the pre-test and the post-test, and a two-tailed test was applied (see 5.4.4).

6.7 PROGRAMME OF THE INVESTIGATION

6.7.1 INTRODUCTION

While in Chapter One the reader was given an overview of the problems facing the learning disabled adolescent in a school for specialised education and the aims of the intended metacognitive strategy intervention programme, in Chapter Two, metacognition, learning and metacognitive strategy intervention were discussed in terms of relevancy to learning disabilities. In Chapter Three an in-depth look was taken at the learning disabled adolescent's profile: his cognitive, metacognitive, linguistic and academic problems, as well as his non-strategic behaviour were highlighted. Chapter Four outlined the school for specialised education, and Chapter Five described the empirical investigation.

In order to fulfil the aims of the study, attention had to be given to the following:

6.7.2 THE IMPLEMENTATION OF A METACOGNITIVE STRATEGY INTERVENTION PROGRAMME FOR THE LEARNING DISABLED ADOLESCENT IN A SCHOOL FOR SPECIALISED EDUCATION

As outlined in Chapter Five, a metacognitive strategy intervention programme consisting of a set of five metacognitive learning strategies based on a research paper by Michael O'Loughlin, Katherine Reitzes and Margaret Jo Shepherd was used. The paper is called Teaching general and specific study strategies to learning disabled adolescents: lessons ready for validation, and it was published by the Research Institute for the study of Learning Disabilities, Teachers' College, Columbia University (1983).

The programme (see 5.5) is aimed specifically at junior high school pupils with learning disabilities and poor study habits.

The general aims of the intervention programme (see 5.5.1) were to assist the pupils improve in the following aspects:

- to focus on the task at hand;
- to organise his home/study environment;
- to allocate and plan study time;
- to identify goals related to assignments;
- to complete tasks correctly with minimum assistance;
- to improve scholastic performance and self-concept.

The specific aims of the intervention programme (see 5.5.2) are:

- to encourage more reflective thought through internal dialogue (verbal mediation);
- to teach the significance of planning, predicting, monitoring, evaluation and feedback;

- to assist pupils to clarify a purpose for each assignment;
- to assist pupils engage in a recursive cycle of corrective feedback until full comprehension is reached;
- to assist pupils to consciously create elaboration connections between the new material and their existing knowledge base;
- to assist pupils to generalise or transfer newly learned skills to novel but appropriate tasks, thereby enhancing learning.

The programme also has a number of notable features (see 5.5.5) which include lessons based on direct instruction, an explicit rationale, an intergrated framework, content that is syllabus-based, routine lesson plans, promotion of self-questioning, and the opportunity for each pupil to practise to proficiency level with individual help when necessary.

The lessons were presented with the aid of cue cards pertaining to the general strategy of concentration, and the specific strategies of reading for information, memorisation, answering questions and solving problems, and writing assignments/paragraphs. These cards made the instruction concrete and meaningful to the pupils (see Appendix B).

Card 1, the general study map contained the beginning and ending steps of each lesson, emphasising general organisational steps involved in any task. All the other cards fitted into the general study map forming an interegrated whole.

Card 2, the concentration card, took the pupils through a sequence of steps designed to get the pupils to see whether they were concentrating or not.

Concentration applies to all learning and study, and it is vital that the pupils' metacognitive awareness level of the importance of this function is raised.

Card 3, the reading for information card, took the pupils through a sequence of steps to promote the importance of better reading and comprehension skills, and comprehension repair (or fix-up strategies) when pupils fail to understand what they have read. Pupils need to be able to monitor and regulate their own reading and comprehension in order to make sense of their textually-based syllabi.

Card 4, the memorisation card, took the pupils through a sequence of steps outlining what to do in order to memorise facts for test purposes. The steps follow a logical order, promoting self-questioning skills, consciously created elaboration connections to link the new and existing information, and plenty of practice.

Card 5, the answering questions and solving problems card, took the pupils through a sequence of steps indicating how to approach a question paper in a more effective way. The pupils are trained to become more organised in their approach, to slow down, be more careful in the way they answer, go back to the questions they thought they did not know and try again, monitoring themselves all the time.

Card 6, the writing assignments/paragraphs card, emphasises going back over the work after each paragraph, to edit the aspects of staying with the topic, checking work for spelling, punctuation and grammar mistakes, making any changes that may be necessary, and ending off with a conclusion.

The outcome of the programme was revealed in the statistical results that follow.

6.8 STATISTICAL RESULTS

6.8.1 TABLE 1: RESULTS OF WILCOXON T-TEST (PRE-TEST A)

(Pre-test A testing concentration, reading for information, memorisation, answering questions and solving problems, and writing assignments).

Student/ Pair	(X)	(Y)	(D=X-Y)	Rank of D	Rank with less freq. sign
A	65%	65%	0	-	
B	80%	82,5%	-2,5	1	1
C	55%	70%	-15	6	6
D	77,5%	42,5%	+35	11	
E	37,5%	60%	-22,5	8,5	8,5
F	67,5%	47%	+20,5	7	
G	67,5%	45%	+22,5	8,5	
H	47,5%	60%	-12,5	4,5	4,5
I	70%	47%	+23	10	
J	70%	65%	+5	2	
K	67,5%	60%	+7,5	3	
L	37,5%	50%	-12,5	4,5	4,5
				N=11	T=24,5

- (i) X is the experimental group.
 - (ii) Y is the control group.
 - (iii) The null hypothesis states that there will be no significant difference in the results of the two groups of pupils.
 - (iv) The calculated T value = 24,5
- The critical T values (two-tailed test) with N=11 are 10 at the 5% level and 5 at the 1% level. Therefore the null hypothesis cannot be rejected.

6.8.2 TABLE 2: RESULTS OF WILCOXON T-TEST (POST-TEST B)

(Post-test B testing concentration, reading for information, memorisation, answering questions and solving problems, and writing assignments.)

Student/ Pair	(X)	(Y)	(D=X-Y)	Rank of D	Rank with less freq. sign
A	82,5%	65%	+17,5	10	4
B	60%	45%	+15	7,5	
C	67,5%	65%	+2,5	1,5	
D	40%	47,5%	-7,5	4	
E	75%	57,5%	+17,5	10	
F	70%	60%	+10	5	
G	67,5%	52,5%	+15	7,5	
H	52,5%	40%	+12,5	6	
I	72,5%	55%	+17,5	10	
J	75%	70%	+5	3	
K	72,5%	72,5%	0	-	
L	82,5%	80%	+2,5	1,5	
				N=11	T=4

- (i) X is the experimental group.
- (ii) Y is the control group.
- (iii) The null hypothesis states that there will be no significant difference in the results of the two groups of pupils.
- (iv) The calculated T value is 4.
- (v) The critical T value (two-tailed test) with N=11 are 10 at the 5% level and 5 at the 1% level. The researcher may therefore reject the null hypothesis at the 1% level, i.e. there is a 99% certainty that there is a significant difference between the results of the two groups.

6.8.3 INTERPRETATION OF THE STATISTICAL RESULTS

The results of the pre-test A revealed a calculated T value of 24,5 (see 6.8.1). With the critical T values on the two-tailed test at N=11 being 10 at the 5% level, and 5 at the 1% level, the null hypothesis could not be rejected. However, on the post-test (see 6.8.2) the calculated T value was 4. With the critical T values on the two-tailed test at N=11 being 10 at the 5% level and 5 at the 1% level, there is a 99% certainty that there is a significant difference between the results of the two groups (i.e. the experimental group performed significantly better as compared to the control group).

6.9 FINDINGS BASED ON THE LITERATURE STUDY AND THE EMPIRICAL STUDY

6.9.1 CONCENTRATION

According to Kronick (1988:15), by adolescence, a pupil should have the powers of concentration to cope with the increased demands of the secondary school syllabus successfully. However, for the learning disabled adolescent this is not the case (see 1.1). Kleinhammer-Trammill et al. (1983:61) quote from Seligman (1975) to the effect that learning disabled adolescents often suffer from a behaviour termed "learned helplessness" which causes them to view their own behaviour as having no influence on consequent events (see 1.1).

Wiens (1983:146) (see 1.2.3), states that the secondary school syllabus is described as requiring many new and adaptive behaviours of the pupils: not only must they cope with more teachers and a variety of classrooms, but they need to be able to take on a greater responsibility for their own learning. Wiens (1983:144), continues to state that the learning disabled adolescent is viewed as not being in control of his thinking, but rather being concrete bound, therefore having difficulty organising his world (see 3.2.2.6).

Most research concerning attentional deficits has focussed around selective and sustained attention (see 3.2.2.3). Wallace and McLoughlin (1988:86) refer to the essential features of attentional problems as inattention, impulsivity (see 1.2.4) and hyperactivity (see 3.4.1). The impulsive pupil, according to Susswein (1982:228) (see 1.2.4), responds too rapidly and tends towards field dependence, and constricted attentional control as regards cognitive style. He adds that direct instruction in more effective cognitive strategies has helped to improve the performance of impulsive children. Kronick (1988:45), has stated that learning disabled children do not pick up behaviours that are not overtly taught or modelled (see 1.2.2), and further that it is important to teach these pupils to help themselves by modelling metacognitive learning strategies for and with them as this will help them to feel more in control (see 1.2.4).

The first metacognitive learning strategy in the intervention programme of the empirical investigation dealt with steps to help the pupils to concentrate more effectively (see 5.5.8.1). The pupils had to slow down in order to follow the steps indicated in the strategy, and this caused them to behave more reflectively (see 3.6.4).

According to Borkowski et al. (1983:471), metamemory about strategies facilitates the actualisation of strategic behaviour and in turn, efficient use of strategies enriches metamemory (see 2.4.3). Concentration is a general study strategy superimposed over all learning and study, and it applies to all the specific strategies that follow (see 5.5.3).

6.9.2 READING FOR INFORMATION

Wiens (1983:146) (see 1.2.3), describes the secondary school as being "subject-oriented". In the secondary school, the pupil will need to cope with increased demands in the area of reading for information in the various subjects. According to Lerner (1988:348) (see 3.5.1), 80% of learning problems are related to reading. Paris and Oka (1989:33) (see 3.5.1), state that learning disabled pupils seem to hold naive concepts about reading strategies: they think the main idea is in the first paragraph, and good readers only read a passage over once. Learning disabled pupils do not engage in active monitoring of their own comprehension, and appear to be unable to recognise obvious absurdities or inconsistencies in certain passages. Wong (1990:18) (see 1.3.2.2), in reviewing the work of Brown (1980), refers to examples of metacognitive strategies used by an efficient reader, e.g., clarifying the purpose of the reading, identifying the important aspects, ignoring the trivia, monitoring on-going comprehension, engaging in self-interrogation and review, taking corrective action (fix-up strategies) and recovering effectively from distractions.

When shown this strategy (see 5.5.8.2), the pupils in the experimental group stated that they were under the impression that "good readers" only read a text over once (see 3.5.1).

When they were introduced to the reading for information strategy, they said they liked using the "flag" because if they were distracted they could find their places easily. As they became used to the strategy it became apparent that the "flag" also slowed them down (see 3.6.4). They were seen to go back over a paragraph and re-read it on many occasions, thus activating

a fix-up strategy. When their reading was directed by a set of questions they seemed to find the text more purposeful. The pupils were amazed to see that they could concentrate so hard and read a whole chapter, understanding it so well when they used this strategy. Other benefits from using the "flag" were that pupils said they were not distracted by too many words on the page in front of them and they did not lose their places.

6.9.3 MEMORISATION

In the literature study, memory deficits or "production deficiencies" as described by Brown et al. (1983:82) (see 1.1), are of particular concern with the learning disabled pupil. Brown et al. in reviewing the work of Flavell, contend that this could be as a result of the fact that as immature learners, learning disabled pupils tend not to introduce strategies to aid their learning, but they can be trained to do so. Wallace and McLoughlin (1988:87) (see 3.2.2.4), describe memory problems as being related to capabilities with storage and retrieval of information. Alley and Deshler (1979: 95) believe that memory problems are not a result of a limited capacity, as much as a difficulty with management and organisation of intact memory capacity (see 3.2.2.4). Kronick (1988:184) (see 3.5.4 and 3.6.3), states that learning disabled pupils memory problems arise from the fact that they do not perceive the connectedness of all experience, they do not perceive the whole, but rather treat each event encountered as novel, decreasing the probability that it will be remembered.

The memory strategy that was taught to the pupils in the experimental group emphasised the whole (see 5.5.8.3). The list of facts the pupils made was in an

organised and logical order. The pupils divided the whole list into two equal parts, memorised each small list, then put the two small lists together again and memorised the whole.

This was the strategy that most of the pupils liked the best, probably because this is what they understand as "learning". The writing down of the facts, an exercise that many had avoided in the past, then the practise of memorising these facts, and linking them to their relevant details as many times as was necessary to remember them, in smaller units, and then again as a whole, made the facts easier to retrieve under test conditions. Because the pupils had experienced success using this memorisation strategy, they stated that they used it across settings. In their own words the pupils stated: "It works!" (see 4.4.3.2).

6.9.4 ANSWERING QUESTIONS AND SOLVING PROBLEMS

From the literature study, Scott (1988:30) (see 3.6), states that research has indicated that most academic failures can be attributed to surmountable strategy difficulties. Kurtz and Borkowski (1987:130), believe that an impulsive response style is associated with inefficient problem-solving (see 3.6.1). Derbyshire (1991:396) (see 1.2), in reviewing the work of Quartel, states that learning disabled pupils often have unrealistic opinions of themselves: they over-estimate or under-estimate their ability and this may result in their actions being unsuccessful, compounding their lack of self-confidence. Derbyshire (1991:389) (see 1.2.2), in reviewing the work of Torgensen (1977), also states that the learning disabled pupils often do not understand instructions fully. Thus by being non-strategic, impulsive, over-estimating or under-estimating their ability, and not following instructions

fully, they are likely to have problems when expected to answer questions in tests or examinations correctly, or solve problems successfully.

In the empirical investigation (see 5.5.8.4) the pupils in the experimental group were instructed to read the entire paper over before attempting to answer anything. This slowed them down and made them behave more reflectively (see 3.6.4). They became aware of certain instructions which previously they had ignored when they were only intent on answering the first question immediately. Reading every question over before writing down any answers also provided them with an opportunity to pick up clues to questions they initially thought they could not answer. As they began to answer the questions they were most familiar with first, they became more confident to go back and read over the ones they had missed out. They did not become "stuck" on a question to the extent that they wasted their time, only to discover a question that they did know but did not have time to answer, as in the past when they responded non-strategically.

6.9.5 WRITING ASSIGNMENTS (PARAGRAPHS)

A study of the literature revealed that learning disabled pupils have problems with the writing process with regards to planning, drafting, editing and revising, as well as problems with knowledge about the organisational structures underlying the writing process (Englert et al.1988:18) (see 3.5.2). These pupils also have serious misconceptions about the gathering and subsuming of information from multiple sources and fail to appreciate the importance of being strategic. They fail to recognise inconsistencies in the requirements of the text and to monitor the completion of a

text. They seem to focus on isolated details and display problems with integrating their information.

Lerner (1988:405-406) (see 3.5.2), states that a poor writing ability is often exacerbated by a poor spelling ability, and learning disabled pupils often refrain from writing elaborate texts for fear of incurring spelling errors.

In the empirical investigation (see 5.5.8.5), the pupils in the experimental group were asked to write down the title or heading and then read it over, jotting down key words of ideas that they had about what they wanted to write about the title. When they had written a paragraph, they had to stop and read it over checking that they had really written about the title. If they decided that this was not the case, they were expected to make any necessary changes. Pupils found this skill the most difficult of all the five to perform. Their sentences were inclined to be short and not very interesting because they seemed to find it difficult to construct a complex sentence, and most of the pupils had severe spelling difficulties and therefore resisted the use of any but the most basic words. When the pupils tried to use longer sentences, there were problems with grammar, spelling and punctuation.

6.10 RECOMMENDATIONS

The following recommendations arise out of the context of this study:

6.10.1 RECONTEXTUALISATION OF THE CURRICULUM

In most secondary classrooms settings, the teachers expect the pupils to stay in their seats and listen to a lesson that often takes the form of a lecture.

There may be some class discussion, but teachers who are subject specialists take it for granted that the secondary pupil has already acquired the necessary skills to function independently at this level, e.g., being able to attend for the whole period, to be able to read and elicit relevant information, to be able to memorise certain information for tests and examinations, to be able to answer questions and solve problems correctly and to be able to write assignments or paragraphs. It is necessary that teachers adjust their thinking and recontextualise school experiences to make them more pupil-centred. Pupils need to take a more active role and learning must be more self-instructional, in that pupils teach themselves or actively direct the material they have to learn. For this to happen teachers need to manipulate the task so that the purpose for which the material has to be studied is made clear to the pupils, and the pupils are able to engage in a recursive cycle of self-monitoring and self-regulation with corrective feedback to proficiency level. Teachers must be aware of the need to assist pupils by consciously creating elaborations between new knowledge and pupils' existing knowledge base until pupils have conceptualised. The pupil who is an active learner, who makes sophisticated judgments, selects strategies and monitors his own progress towards a clear goal is using the metacognitive approach.

6.10.2 TEACHER TRAINING

There is a need to train teachers in the metacognitive approach if the above-mentioned recommendation is to be implemented. There are many levels at which this training could be implemented:

6.10.2.1 IN-SERVICE TRAINING

Staff development sessions at school could serve as a platform for introducing the metacognitive approach to teachers in schools for specialised education. Teachers who understand the principles underlying metacognitive learning theory could be put in a better position to mediate for their pupils.

6.10.2.2. TRAINING AT TEACHERS' TRAINING COLLEGES

The metacognitive approach could be introduced into the basic training courses for the students at Teachers' Training Colleges. In this way new teachers will be well grounded in this theory when they start teaching.

6.10.3 EXTENSION OF METACOGNITIVE STRATEGY INSTRUCTION PROGRAMMES

The type of programme of metacognitive strategy instruction outlined in this study could be modified and extended to suit the needs of pupils at other levels and at other institutions as follows:

6.10.3.1 THE PRIMARY SCHOOL PHASE

Implementing metacognitive strategy instruction at the primary school level would help to train pupils from a younger age to be more independent as learners and perhaps prevent some of the problems that develop later on in the pupil's school career, e.g., the poor self-concept that arises as a result of years of failure and frustration.

6.10.3.2 THE SENIOR SECONDARY SCHOOL PHASE

There are many skills that are relevant to the senior secondary school phase where the metacognitive approach could assist the pupil. The pupils at this level need to be able to select and underline the

main points of a text, as well as be able to summarise, make their own notes and write a precis. There is often mention made of the gap between high school and tertiary education where high school pupils are supposedly not taught to think for themselves. Introducing a metacognitive approach in the final years of a pupil's school career could help to prepare him better for a tertiary education.

6.10.3.3 THE TERTIARY EDUCATION PHASE

Many pupils who have perhaps had a disadvantaged school career are not mature enough as learners when they reach tertiary education and may fail their first year costing the state much money. A supplementary metacognitive strategy programme at tertiary institutions, which is designed to suit the student at this level, may help to bridge the gap between school and tertiary education.

6.10.3.4 MAINSTREAM SCHOOLS

There are still many pupils with learning disabilities at mainstream schools who, as immature learners, are struggling to cope with the demands of large classes and minimum assistance from their teachers. There is a need for teachers in the mainstream to give assistance to these pupils so that they can be in a better position to monitor and regulate themselves. Besides recontextualising the curriculum to make it more pupil-centred for all the pupils in the school, there is a need for the learning disabled to be offered a supplementary programme of metacognitive strategies based on the needs of their syllabi, to aid their learning.

6.10.4 EVALUATION INSTRUMENTS FOR MEASURING METACOGNITIVE AWARENESS

It became apparent in the undertaking of this investigation, that there were no evaluation instruments available to measure school-going pupils' metacognitive awareness levels. A scientific instrument of this nature could be a very useful tool in establishing exactly where a pupil's problems lie with regard to how pupils think about their own thinking.

6.10.5 METACOGNITIVE AWARENESS AND LIFE SKILLS

Some pupils may need explicit training with regards to life skills in order for them to take their places as fully-fledged members of society. They may need assistance with life skills as diverse as organising their day, or attending to personal hygiene. Many of these life skills can be addressed through metacognitive strategy instruction. Pupils need help to organise, plan, monitor, check and interpret feedback. By raising their metacognitive awareness levels of the interaction of their own resources, the task at hand, and strategies available to them, they can be put in a better position to cope with their daily lives.

6.10.6 METACOGNITIVE AWARENESS PROGRAMMES FOR PARENTS

Parents have a need to be introduced to the concept of metacognition in order to be able to reinforce at home what the pupils experience at school. For most parents the concept is entirely new. While some parents are inclined to over protect their children, particularly those who have a learning disability, some parents are so busy with their own lives that they fail to find much time to mediate for their children. Parents need guidance to understand how the concept of metacognition can help them assist

their childrens' development of self-monitoring and self-regulation skills at home, and how they can help their children become more critical, ask more questions, and be more involved in purposeful activities that promote successful learning.

6.11 RECOMMENDATIONS FOR FUTURE RESEARCH

6.11.1 THE DESIGN OF A METACOGNITIVE STRATEGY INTERVENTION PROGRAMME FOR PRIMARY SCHOOL PUPILS

The design of a metacognitive strategy intervention programme for primary school pupils, with particular reference to self-verbalisation and think-aloud strategies as ways to assist younger pupils to mediate for themselves should be undertaken. These pupils can be trained to monitor, regulate and develop their own strategies that are general in nature and applicable to as many tasks as possible.

6.11.2 THE DESIGN OF A METACOGNITIVE STRATEGY INTERVENTION PROGRAMME FOR ADULTS WITH LITERACY PROBLEMS

The design of a metacognitive strategy intervention programme for adults with literacy problems should be undertaken to investigate ways to assist these adults towards basic literacy skills and independence in the shortest possible time. What is needed at this level are metacognitive strategies that focus on basic reading and writing skills related to daily life experiences and vocational needs. Many adult illiterates are handicapped by the fact that they cannot fill in forms because they cannot read, and they cannot write or sign their names.

A programme based on metacognitive principles, including a psychological rationale, relevant and purposeful content and immediate feedback would assist them to make maximum progress.

6.12 CONCLUSION

This study was undertaken to investigate ways in which the learning disabled adolescent in the secondary section of the school for specialised education could be assisted to cope more independently with the demands of the secondary curriculum, particularly in the areas of concentration, reading for information, memorisation, answering questions and solving problems, and writing paragraphs or assignments. The study revealed that through explicit instruction in metacognitive learning strategies covering the areas mentioned, which are the skills most regularly required at this level, the pupils in the experimental group showed a significant improvement in performance.

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APPENDIX A

PRE-TEST (TEST A)

POST-TEST (TEST B)

ANSWERING SCHEME (TEST A & B)

TEST A

Please read the following story about India's most famous son. You are required to: (i) memorise the words in bold type. (ii) answer certain comprehension questions based on this passage by underlining the correct answer from the choice of answers inside the brackets, and (iii) write a paragraph consisting of 5 sentences on the given topic.

YOU WILL BE TOLD WHEN TO TURN OVER. ONCE YOU HAVE TURNED OVER YOU MAY NOT LOOK BACK TO THIS PASSAGE.

INDIA'S PROPHET OF PEACE

They said he was a saint who had strayed into politics. Of himself he said that he was a politician who was trying to behave like a saint. Many times during his seventy-nine years he took on governments and beat them, challenged states and watched them back down, championing the cause of the poor and oppressed on two continents. Through it all, he spoke and lived the message of non-violence, though ironically he lived during a period of history that saw two world wars.

Mohandas Karamchand Gandhi, born in India in 1869, came to South Africa as a young lawyer and stayed for twenty-one years. He abandoned his successful legal practice to devote himself totally to public work, and concerned himself especially with the hardships experienced at that time by South Africa's politically oppressed Indian community.

But the world has never been short of reformers. What made Mahatma Gandhi different? What won him the respect of General Jan C Smuts, initially a vehement opponent? What made him a figure admired throughout the civilised world? Let's examine some of his achievements and beliefs.

Gandhi was a passionate and generally successful crusader. He was largely responsible for having oppressive anti-Indian laws repealed in South Africa. He achieved a great deal in his attempts to bring about harmony in India between the Hindu and Moslem communities, and he played an active role in the campaign for Indian independence from British rule.

His great capacity for compassion emerged particularly in his efforts on behalf of the "Untouchables" in India - "the children of God" as he called them - who were despised by the mass of Indian society. In order to gain acceptance for them, he taught tolerance of one's neighbours, the value of every individual, and the rights of the depressed classes.

TEST A

NAME: DATE:

QUESTIONS:

1. Gandhi described himself as a politician trying to behave like a (republican/saint/president).
2. He championed the cause of the poor and the oppressed throughout his lifetime of (77/78/79 years).
3. The basic message he spoke and lived was that of (violence/non-violence/democracy).
4. He abandoned a successful (medical practice/legal practice/dental practice) to come to South Africa and devote himself to public work.
5. He was particularly concerned with the hardships experienced at that time by South Africa's politically oppressed (Moslems/Hindus/Indians).
6. (General Smuts/General Botha/General De Wet) initially a vehement opponent, afterwards had great respect for Gandhi.
7. He was largely responsible for the lifting of oppressive (anti-Indian laws/apartheid laws/parliamentary laws) in South Africa.
8. He played an active role in the campaign for Indian independence from (British/French/German) rule.
9. "The children of God" as he called them, were also known as the (Illiterates/Saints/Untouchables).
10. He wanted to bring about a reconciliation between the Hindu and (Indian/Sikh/Moslem) communities.

TOTAL: 10 MARKS

WRITTEN PARAGRAPH:

Write a paragraph of 5 sentences on

India's Prophet of Peace

TOTAL: 10 MARKS

TEST B

Please read the following continuation of the story about India's most famous son. You are required to: (i) memorise the words in bold type. (ii) answer certain comprehension questions based on this passage by underlining the correct answer from the choice of answers inside the brackets, and (iii) write a paragraph consisting of 5 sentences on the given topic.

YOU WILL BE TOLD WHEN TO TURN OVER. ONCE YOU HAVE TURNED OVER YOU MAY NOT LOOK BACK TO THIS PASSAGE.

INDIA'S PROPHET OF PEACE - PART 2

Mahatma Gandhi's beliefs were often misinterpreted. He urged India's poor to take up hand-spinning of cloth as a means of breaking free from their desperate poverty, and from dependence on shoddy, town-made goods. As a result he was accused of rejecting the use of machinery. "What I object to," he argued, "is the craze for machinery. Men go on saving labour until thousands are without work and are thrown on the open streets to die of starvation." He observed a strict personal regimen and adhered firmly to the laws of health and hygiene, preferring if possible to use natural medicines to treat illness when it did occur - and was accused of belittling the importance of scientific medical progress!

Obviously all the factors mentioned contributed to Gandhi's reputation for greatness, yet none of them can completely account for it. So what was it then? It had to be the way he went about his life: his methods. Above all else, he insisted that non-violence was the only acceptable means of achieving anything of importance, the only acceptable political weapon, together with the other great weapons of truth and unfailing goodwill, even to one's enemies. Gandhi fasted to call attention to injustice and social evil, and to force influential people in his country to change their ways. For Gandhi a fast signified his willingness to suffer for a cause. Very often he found himself in conflict with authority, and suffered imprisonment both in South Africa and India for his outspoken courage.

Consciously he freed himself from the need for possessions, even from the need to own his own home, and walked from village to village around India, spreading his message of self-sufficiency and urging the abolition of the evil of untouchability. But Gandhi's policy of tolerance and equality for everyone did not suit all his countrymen. A small group of extremists still wanted **Hindu domination** for India, and realised that this could never happen while Gandhi lived. Early in 1948, on his way to his daily prayers, he was shot and killed, the champion of non-violence violently murdered.

TEST B

NAME: DATE:

QUESTIONS:

1. Gandhi tried to get India's poor to take up (spinning of clothes/machine spinning/hand spinning of cloth).
2. He wanted the poor to break free of their dependence on (shoddy town-made goods/imported goods/local machinery).
3. This led to him being accused of (rejecting his people/rejecting the use of machinery/rejecting his profession).
4. He argued that what he really objected to was the (use of machinery/craze for machinery/dependence on machinery).
5. He said that men would go on saving labour until thousands were (unemployed/ignorant/free).
6. He was accused of belittling the importance of scientific medical progress because he (kept himself healthy/believed in non-violence/used natural medicines).
7. Gandhi's greatness can mainly be attributed to (his methods/his rejection of violence/his rejection of shoddy, town-made goods).
8. Gandhi believed that the only acceptable way of achieving anything of importance was through (non-violence/fasting/domination).
9. A small group of extremists wanted (South African/Indian/Hindu) domination.
10. He was shot early in (1938/1947/1948) on his way to daily prayers.

WRITTEN PARAGRAPH

Write a paragraph of 5 sentences on:

Gandhi's beliefs and methods.

TOTAL: 10 MARKS

ANSWERING SCHEME TEST A AND TEST B

QUESTIONS:

One mark for each question correctly answered.

TOTAL: 10 MARKS

PARAGRAPH:

Two marks for each sentence.

1/2 Mark deducted in each sentence for Punctuation, Spelling, Grammar and Context (maximum only 1/2 mark deducted for initial error in each category).

TOTAL: 10 MARKS

APPENDIX B

THE CUE CARDS

1. THE GENERAL STUDY MAP
2. CHECKING CONCENTRATION CARD
3. READING FOR INFORMATION CARD
4. MEMORISATION CARD
5. ANSWERING QUESTIONS AND SOLVING PROBLEMS CARD
6. WRITING ASSIGNMENTS/PARAGRAPHS CARD
7. EXAMPLE OF MEMORISATION INSIDE GENERAL STUDY MAP CARD

What am I supposed to learn?
What kind of information do I need to know for the test?

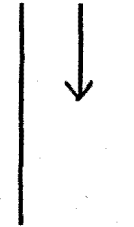
Insert plan

Go to a quiet spot

Get the Materials

Ask:
What do I need to do for home-work?

START



GO BACK AND MAKE CHANGES

STOP

YES

no

Ask: Am I willing to make changes?

GO BACK TO STUDY PLAN

STOP

YES

no

Ask: Am I willing to review?

Write down any questions you have.

Ask: Have I done what the teacher expected? Check for completion, spelling, punctuation and neatness.

no

YES

Ask: Do I understand the material? Do I know what I need to know?

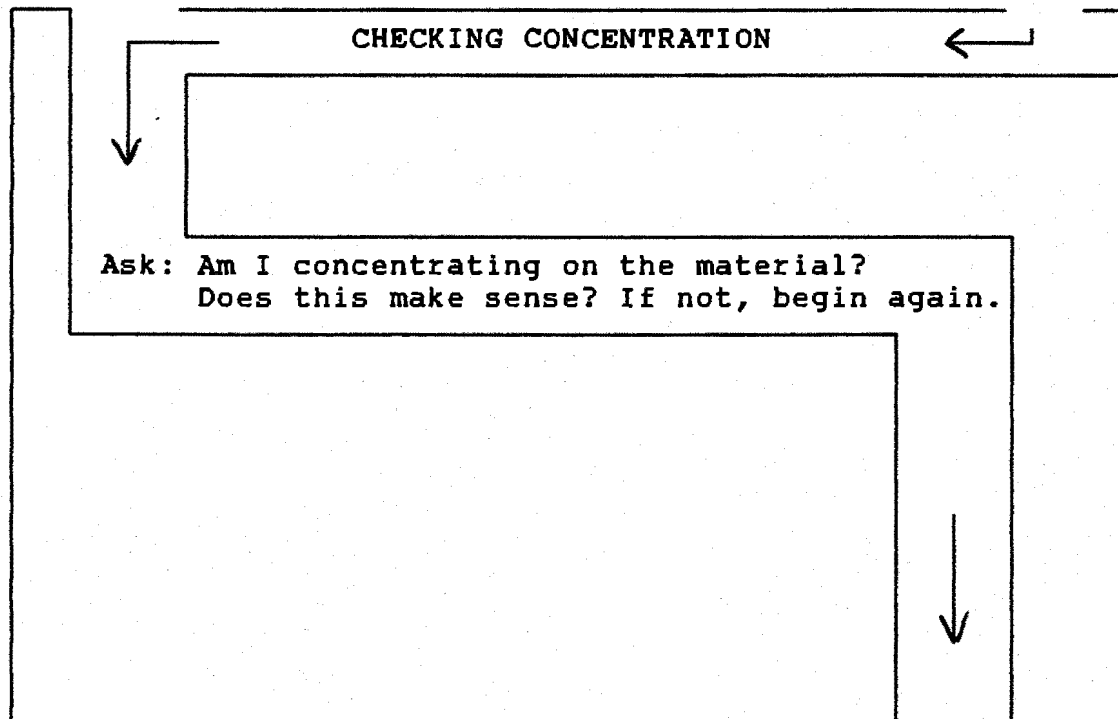
no

THE END

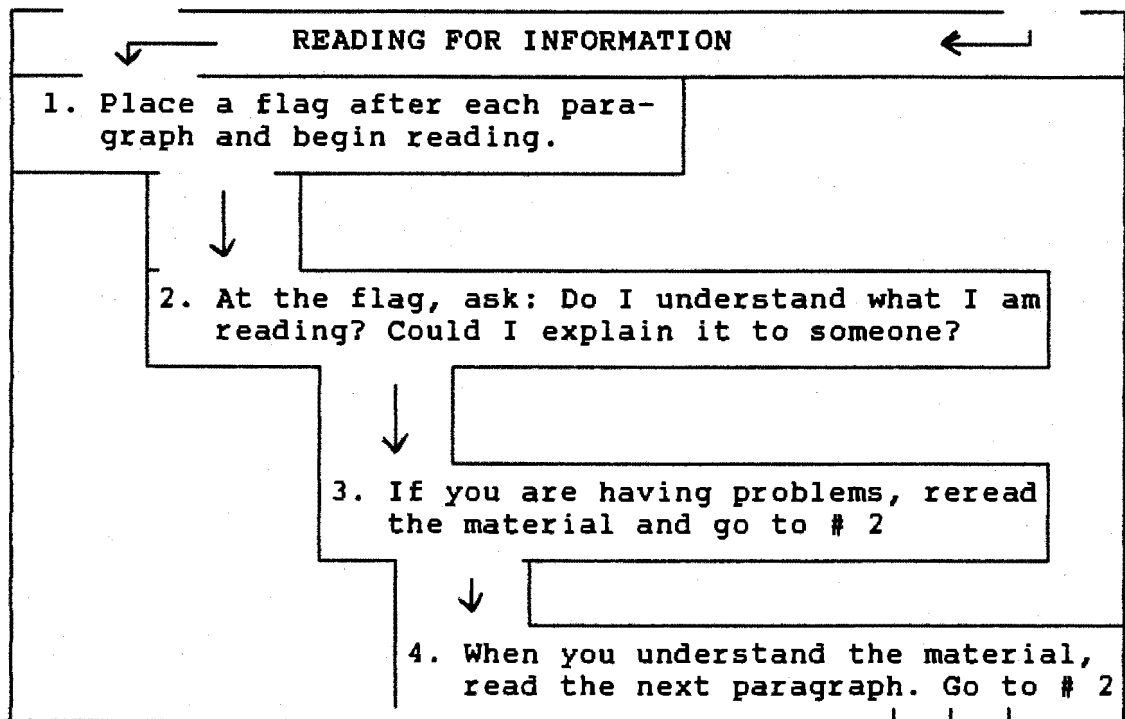
YES



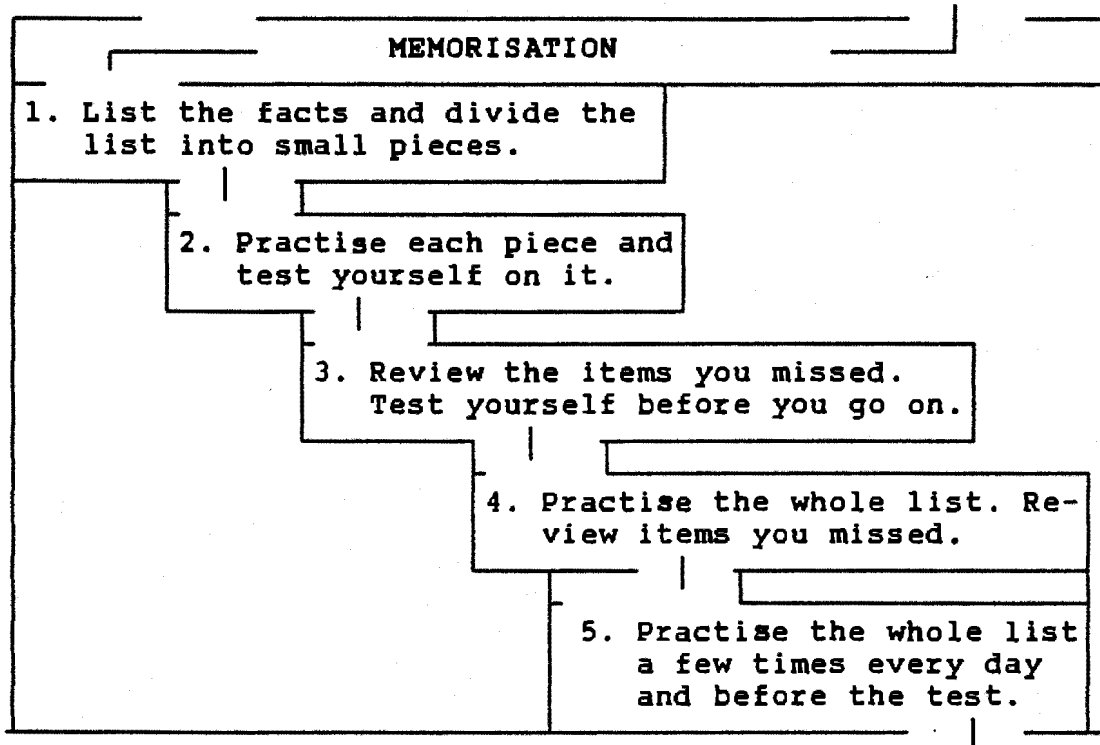
2. CHECKING FOR CONCENTRATION CARD



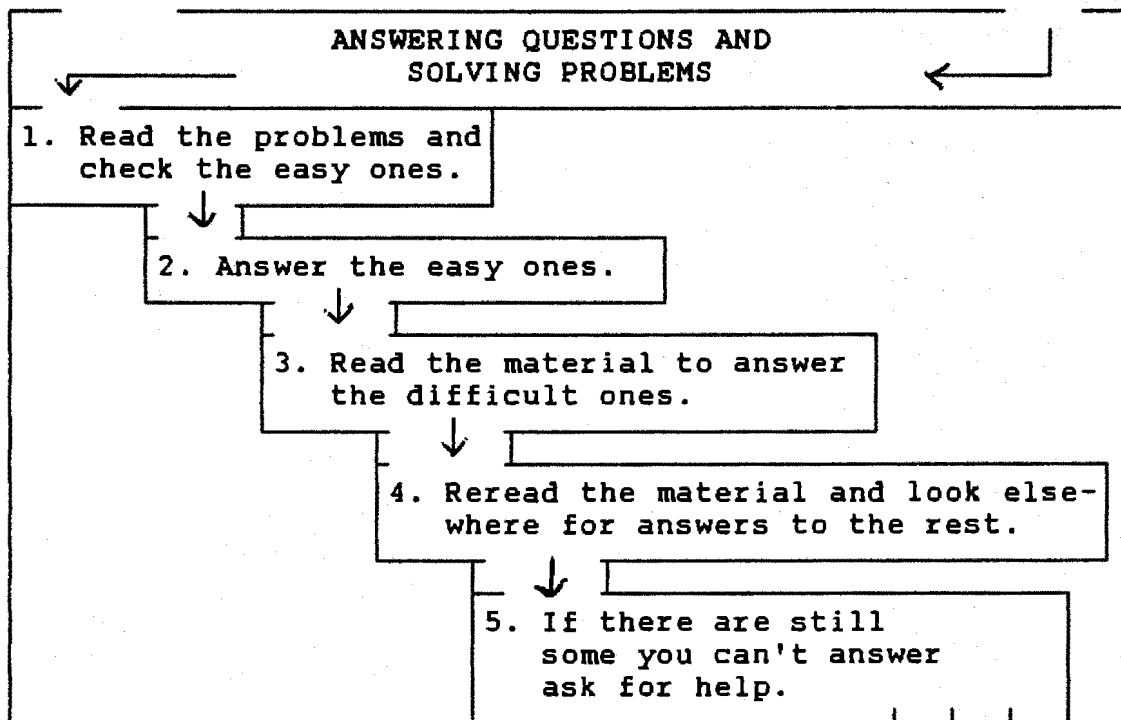
3. READING FOR INFORMATION CARD



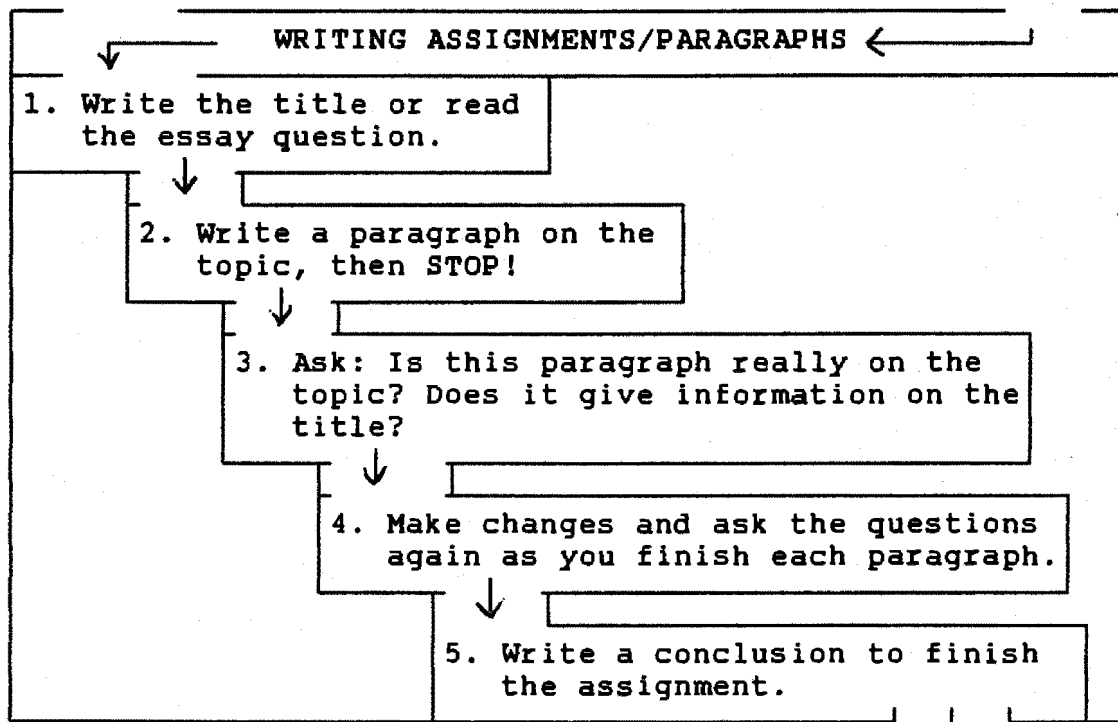
4. MEMORISATION CARD



5. ANSWERING QUESTIONS AND SOLVING PROBLEMS CARD



6. WRITING ASSIGNMENTS/PARAGRAPHS CARD



Ask: What does the teacher expect?
What am I supposed to learn? What
kind of information do I need to
know for the test?

GENERAL STUDY MAP

Insert
plan

Go to a
quiet spot

MEMORISATION

1. List the facts and divide the
list into small pieces.

2. Practise each piece and
test yourself on it.

3. Review the items you missed.
Test yourself before you go on.

4. Practise the whole list. Re-
view items you missed.

5. Practise the whole list
a few times every day
and before the test.

Get the
Materials

Ask:
What do I
need to do
for home-
work?

START

GO BACK
AND
MAKE
CHANGES

STOP

YES

no

Ask: Am I
willing to
make changes?

GO BACK
TO
STUDY
PLAN

STOP

YES

no

Ask: Am I
willing to
review?

Ask: Have I done what the
teacher expected? Check
for completion, spelling,
punctuation and neatness.

no

YES

Ask: Do I understand
the material? Do I
know what I need to
know?

no

YES

Write down
any question
you have

THE
END

THE
END